UNIVERSITY OF ALBERTA

Retention of Pre-operative Information among Older Adults Who Undergo Hip Replacement Surgery

By

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Dedication

I would like to dedicate this thesis to my husband Gary and my three children, Erin, Shea, and Kevin. I would like to thank you for your encouragement throughout my education. You have rarely complained about the time taken away from family. I am so very fortunate to claim you as my own.

Finally, I would like to dedicate this thesis as well to my parents who thought I could do it. I did and thank you for your faith in me.

Abstract

Increasing numbers of older adults are seeking total hip replacement surgery as a result of arthritis or degenerative disease. It is unclear if the preoperative education currently being offered meets the needs of these clients. The primary purpose of this study was to describe the postoperative retention of preoperative information among older adults undergoing total hip replacement surgery. A convenience purposive sample (n=40) of total hip replacement clients aged 64 years and older was used for this study. Clients were interviewed with a semi-structured questionnaire to assess their understanding of the preoperative education and transferability of this information to daily activities. This interview took place between the second and third day of the postoperative period, prior to discharge home. Results suggest that although clients might be aware of most of the safety precautions related to seating, ambulation, and identification of complications, they were not always aware of the rationale which places them at risk for dislocation. Implications for nursing and research are discussed.

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CHAPTER ONE

INTRODUCTION

Older adults[1] "are the fastest growing segment of the population (12.7%) and use an increasing share of healthcare resources" (Best, 2001; Statistics Canada, 2001). In order to contain healthcare costs, there have been various attempts to shorten length of stays in hospitals. Consequently, there is less time for patient education in the post-operative period. At the same time, there is an increasing number of older adults who seek orthopaedic procedures as a result of arthritis or degenerative diseases. Lack of mobility and pain from their disease conditions often alters their quality of life (Best, 2001; MacDonald & Arthur, 2005). Total hip replacements have increased 10% since 1994 and the increase is seen largely in the 75-84 age groups (Statistics Canada, 2001).

According to the American Academy of Orthopaedic Surgeons the most common complication following a total hip replacement is dislocation of the affected joint. The replacement ball of the total hip replacement is smaller and the acetabular surface receiving the ball has less surface area than the normal hip joint, and therefore can become displaced from the socket when the hip is in certain positions (National Institutes of Health, 2006). Hence, instruction regarding precautions is a major consideration for these older adult clients. The older orthopaedic patients undergoing a total hip replacement may also require special instructions regarding rehabilitation and living with their new joint (Best, 2001).

[1] In this thesis, older adults refer to those individuals aged 64 and older.

Other complications such as infections, pulmonary emboli and blood clots may also have life-threatening outcomes. Teaching to ensure positive surgical outcomes is ostensibly very important. In addition, the older adults may have special learning needs regarding their own health and managing disease processes (National Institutes of Health, 2006). An understanding of the normal aging process is essential to provide effective patient education as normal aging causes changes in the sensory system that can affect all of the five senses. Some of the difficulty with the aging population, particularly with the hearing and visually impaired, is that unless content of given materials is either heard or read, for example, the consent documents that these individuals sign may be considered invalid (Hines, 2000). Moreover, changes in the musculoskeletal system can cause the older adult clients to have difficulty sitting for long periods of time; therefore educators need to allow for position changes (Posel, 1998). Some older adults, especially the very old at over the age of 80, may have limited education because of lack of availability of educational opportunities many years ago and some may even be functionally illiterate. All of these factors are common conditions and need to be considered in the presentation of education or new information to promote positive surgical outcomes (Best, 2001).

Purpose of the Study

The purpose of this research study was to describe the post-operative retention of pre-operative information among older clients undergoing a total hip replacement surgery in a mid-sized Alberta city hospital.

Research Question

The specific question addressed in this study was: What is the retention of pre-operative information among older adults between the second- and third-day post-operative following a total hip replacement surgery?

Definitions

Pre-operative education was delivered in the time period before surgery in a pre-admission clinic in the mid-sized Alberta hospital was examined in this research study. The surgery also took place in the same hospital. The education was delivered in a group setting to patients by nursing staff that were well versed on the delivery of total hip replacement information. The information was given through a combination of handouts, an overhead presentation, and a short instructional video. The education was provided on the same day when the client underwent x-rays and lab work. Clients all received the same information package regarding discharge, lifelong movement precautions, and general information regarding their surgery.

Surgical outcomes are defined as the results of the total hip joint surgery. Positive outcomes of this surgery generally refer to improvement in quality of life by the reduction of pain from the diseased joint and increased mobility. Common negative outcomes of total hip replacement surgery include pain, dislocation, infection, and deep-vein thrombosis.

Total hip replacement is a surgical procedure for replacing the hip joint. The existing diseased or damaged hip joint is removed by amputation of the head of the femur, usually between the greater and lesser trochanter. The femoral prosthesis is tamped down into

place, and may be either cemented or non-cemented. The acetabulum is debrided to accept the replacement. The acetabular component is placed in the acetabular space and then screwed into place.

Significance to Nursing

A systematic review by Stern and Lockwood (2005) revealed that although there have been many studies that looked at pre-operative education, "little high-quality research has assessed the effectiveness of this information on patient knowledge …" (p. 46). Literature that specifically describes how well older patients undergoing joint replacement surgery retain pre-operative information could not be found. Nor is there any information about how well this particular group of clients are able to transfer this knowledge to their home and social environments. If the degree of retention of pre operative teaching can be determined then factors that affect learning and retention of pre-operative teaching among older adults undergoing joint replacement surgery can be identified. Further studies could then explore interventions to enhance retention of information.

CHAPTER TWO

LITERATURE REVIEW

A literature review was conducted to examine what was known regarding total hip replacements and complications, methods of delivery of pre-operative education, and implications for nursing practice.

Search Strategy

The body of knowledge on total hip replacements is particularly broad due to contributions from a variety of disciplines. The author reviewed the available nursing, medical, physiotherapy, and rehabilitation literature published in the English language within the period between 1982 and 2008 through a computerized search of the Allied Health Literature (CINAHL), MEDLINE, and the Cochrane Database. The keywords used in the search included total hip replacement, pre-operative education, hip surgery, retention of information, complications of hip surgeries, and older adult learning.

Total Hip Replacement Approaches

The two most common surgical approaches to total hip replacement are anterolateral and posterior (Ritter et al., 2001). According to Gore et al. (1982), both of these approaches allow surgeons good visualization of the hip joint, are not problematic to the neurovascular structures, and offer the client desirable post-operative results. When utilizing the posterior approach, the client is positioned on his/her unaffected side with the operative side elevated using foam wedges. A posteriolateral incision is made and a portion of muscles is divided to visualize the hip joint. This approach involves dislocating

the hip posteriorly to remove the existing joint and replacing it with a prosthetic joint. Furthermore, this approach is used often due to its muscle sparing; however, it may leave the joint more vulnerable as any internal rotation of the leg could result in dislocation. The anterolateral approach is done with the patient in a supine position with a small wedge placed under the affected leg. A lateral incision is made, the affected muscles are divided, and the hip is then dislocated anteriorly. One disadvantage of this approach is a higher risk of dislocation if the affected leg is excessively externally rotated (Gore et al., 1982). Mauer et al. (2002) determined that the surgical approach most commonly used in hip replacement surgery is the posterior approach.

Complications of Joint Replacement Surgery

Joint Dislocation

The American Academy of Orthopaedic Surgeons notes that the most common complication following a total hip replacement is dislocation of the affected joint. The replacement ball is smaller and the acetabular surface receiving the ball has less surface area than the normal hip joint, and therefore can become displaced from the socket when the ball and socket are not aligned properly (National Institutes of Health, 2006). The occurrence of hip dislocation after a total hip replacement is 2-3% according to Morrey (1997). This adds significant cost and, more importantly, increases the possibility of morbidity outcomes following the procedure. Dislocation is common among female adults and those who are older. Hence, instruction regarding precautions is a major consideration for this group of clients.

According to Ritter et al. (2001), the differences in the two surgical approaches are also evident when examining post-operative complications. In their study, there were eight dislocations associated with the posterior approach compared to none resulting from the anterolateral approach. However, the posterior approach clients experienced a smaller amount of blood loss than those undergone the anterolateral approach. In a review study by Mallory et al. (1999), the percentage of dislocations for the posterior approach was 4.7% while there was none for the anterolateral approach. In a subsequent literature review done by Masonis and Bourne (2002) on over 200 clinical studies between the years 1970 and 2001, the overall rate of dislocations was 3.23% for the posterior approach and 2.18% for the anterolateral approach. Further discussion resulting from this literature review has determined that there is a very limited amount of literature on the specific complications of the different surgical approaches and that "the absolute effect of surgical approach on total hip arthroplasty dislocation remains unknown" (Masonis and Bourne, 2002, p. 52).

Further work revealed that the proficiency of the surgeon might influence surgery (Hedlundh et al., 1996). Surgeons had increased rate of dislocations within the first 15 total hip replacement surgeries that they completed especially during the first year of their surgical practice. As stated earlier, other complications resulting from surgical procedures such as infections, pulmonary emboli, and thrombi may also have life-threatening outcomes. Pain and confusion are also major untoward effects of this type of surgery.

Thrombosis

Total hip replacement surgery is accompanied by a high risk for thrombus formation. Hemostasis of the limb due to long surgical time increases the incidence of clot formation; therefore, early mobilization and use of anticoagulants are essential. Mauer et al. (2002) studied the practice patterns of anticoagulation among physicians and determined that the most common form of anticoagulation was oral (69%) followed by subcutaneous low molecular weight heparin (31%). The institutions surveyed in this study stated that anticoagulation therapy was always used. Although there may be a link between anticoagulation and gastrointestinal bleeding, the use of COX-2 medication, decreased used of NSAIDs, and the use of acetaminophen and limited use of ketorolac greatly decrease this incidence. Furthermore, in the same study, clients stated that discharge instructions on the precautions of anticoagulant use in the home setting were adequate. Nurses who were surveyed indicated that instructions were given out 82% of the time.

Pain and Confusion

Pain is the primary symptom that causes the older client to seek surgical intervention. According to Stomberg and Oman (2006), the goal of a total hip arthroplasty is to decrease the client's pain and to improve his/her quality of life through increased physical function. From self-reports, the older population indicated that they waited for a length of time before actually seeking help for alleviation of pain, and also often waited for long periods of time before undergoing surgery (Stomberg & Oman, 2006).

In an epidemiologic study of the older adult, Mobily et al. (1994) determined that pain is a common occurrence. Eighty-five per cent of persons living on their own reported some degree of pain over the last year and 59% complained of multiple pain events. Older adults often interpret the pain experience as an expectation of the aging process. This can result in the person in this demographic being reticent about seeking relief of pain. Some of the false assumptions regarding the aging process are pointed out by Prowse (2006). These include: the pain experience decreases with age; if the individual does not complain of pain, he/she is not experiencing it; use of opiates are dangerous in the older population, and older adults can become addicted to opiates when used for pain control. Stomberg and Oman (2006) also pointed out that pain must be assessed in the older client on an individual basis, and factors that need to be considered to determine appropriate use of pain relievers are the patients' cognitive state and their co-morbidities.

Pain and confusion are some of the most common outcomes of surgery that can impede the rehabilitation process. MacDonald (2001) audited the charts of a random sample of 50 patients who had undergone hip surgery for fractured hip repair, before and after a change in physician practice to using non-narcotics for post-operative pain. Prior to the change, 50-60% of these older adult clients experienced delirium and cognitive impairment. Because of the hypnotic effects of the narcotics, it was thought that nurses were reluctant to give narcotics for pain relief in an attempt to lower confusion. Subsequently, confused clients complained of more discomfort than non-confused patients. Complications associated with acute pain include activation of stress response, which may increase cardiac and respiratory workload. Furthermore, delirium often results

in injury, increased hospitalization, and more surgery and anesthesia. The use of non-narcotics in the said study resulted in a decrease in confusion in the orthopaedic older adult client. With the change in prescriptive practice, an improvement in pain control and a decrease in confusion were noted.

Wong, Wong and Brooks (2002) compared rates of confusion among patients who underwent emergency and elective hip surgeries. All participants were alert and oriented prior to the surgery, and both family and client denied any history of confusion. It was discovered that 23% of older emergency patients experienced confusion following the surgery. There was no significant difference in confusion states with respect to marital status, co-morbidities, medication usage, and living arrangements. Confused older clients tended to express more discomfort than those who were not confused. The results in this study suggest that the preparation for surgery could account for the decrease in confusion in the elective surgeries. Wong et al. (2002) also speculated that being cognitively prepared for surgery could account for decreased confusion in the post-operative period.

Rehabilitation cannot be entirely initiated until the client is no longer in pain and has regained intact cognition. Information on the re-admission rate for patients who suffer complications following total hip replacement surgery was not found. Furthermore, there seems to be little available information on the effectiveness of pre-operative education in preventing negative outcomes of hip replacement surgery.

Pre-operative Education Delivery

A number of studies focus on pre-operative education for orthopedic patients. Mauer et al. (2002) distributed questionnaires to all facilities in the United States, Canada and England that performed total joint surgeries. It was determined that most of the pre-operative education in the United States was completed on a one-to-one basis between the client and educator. In Canada and England, however, most pre-operative education was accomplished through group sessions. The study determined that 87-90% of total hip joint replacement clients received their education in pre-admission clinics in group settings. Education occurred most commonly 12 days prior to admission, and other procedures such as lab tests also took place on the education day. There was no mention of whether or not educational materials were offered to the client before or after the session.

Lewis, Gunta and Wong (2002) compared the use of an interactive DVD and standard video as pre-operative teaching intervention with a convenience sample of 58 clients (median age of 68 years) who underwent elective joint replacements. The DVD education group had a significantly higher knowledge score than the clients who received the standard video education ($t=2.358$, $df=54$, $p<0.05$). These results indicate that involvement of the client in the education process results in the client attaining a higher level of knowledge. Yeh, Chen and Liu (2005) also compared the use of multimedia education with traditional group teaching with positive results. They found that the post-operative recovery period was shorter and clients attained higher levels of knowledge.

When Estey et al. (1993) evaluated the use of a patient information booklet, they found that readability and comprehension of the information needed to be scrutinized to ensure that the written information would not cause confusion and added stress. Estey et al. pointed out that clients would already be experiencing stress due to the anticipation of surgery, being away from home, family and friends, and that this could affect their ability to understand written materials. Suggestions from the study were to ensure that the reading materials were at a grade-five reading level, and that tests should be applied to printed materials to evaluate readability and reading level (Estey et al., 1993).

Ouellet et al. (2003) compared two types of discharge teaching. The control group (n=26) received standard discharge instructions and the experimental group (n=27) received additional written instructions as well as a follow-up phone call within 24-72 hours of discharge from the hospital. Before discharge, 20% of the participants of both groups felt some uncertainty regarding their readiness for discharge. After discharge, 90% of both the control and experimental groups felt that they had received adequate discharge information, but 45% reported that they experienced difficulties after discharge. These difficulties related primarily to transferring the mobility precautions to the home setting. Cost of follow-up phone calls is high, but this study suggests that early intervention in the early discharge period can be advantageous.

In a study by Butler et al. (1996), the participants in the study group (n=32) received an information booklet while the control group of 48 did not. The results of this study showed that the study group was less anxious throughout the hospitalization period and was more compliant with exercises than the control group. Discharge time was not significant between the two groups.

In a qualitative study by Spalding (2000), clients responded more positively to pre-operative education when they felt that they had choices in their participation in information sessions. Several suggestions for pre-operative education were outlined. First, all clients should receive a welcoming letter inviting them to the education sessions. The letter should be free from medical terminology, include the purpose of the education, timeframe of the day and information to be covered in the sessions, and should invite the client to come prepared with concerns and questions. Second, education should be offered in a relaxing environment with time allotted for client-generated questions and individual private consultation. Third, handouts should be written in simple language with a recommended reading level of grade six or lower. Finally, continual evaluation of the pre-operative process needs to be ongoing. It was also recommended that the clients be interviewed both before and after the education sessions as well as before and after the surgery. This would enable the interviewer to capture any misunderstandings the client might have and discover any gaps in knowledge regarding surgery and rehabilitation. The ultimate goal was to develop orthopaedic patient education so as to make it more empowering by supporting and encouraging the patients' own participation and decision making in their care.

Gammon and Mulholland (1996) tested standard education delivery with and without preparatory coping exercises. The experimental group (n=41) was taught the existing pre-operative education and was given instructions on stress-relieving exercises such as deep breathing and calming exercises. The results of the study demonstrated the advantage of teaching coping mechanisms along with pre-operative education. The combination of both resulted in clients demonstrating a higher level of knowledge

concerning the details of the surgery and their rehabilitation. The experimental group also experienced a decrease in length of stay by three days as compared to the control group, and the post-operative complications were 2.5 as opposed to 2.9. This, however, did not meet statistical significance.

Montin, Suominen and Leino-Kilpi (2002) examined the experiences of being a patient, of care, and of the healthcare setting. The researchers discovered that the more involved the client felt in his/her care and the decisions related thereto, the greater his/her interest in obtaining more information about hip replacement, and the more likely the client was to follow instructions for rehabilitation properly. Clearly, the more interactive the client is in the education process, the greater the level of knowledge retained from the pre-operative education would be. The greater involvement that the client has in all aspects of their care in the post-operative period also increases the likelihood that the client will be more interested in learning about rehabilitation.

Nurse and Patient/Client Perceptions

Mauer et al. (2002) discovered inconsistencies in the perceptions of delivery of discharge instructions among nurses and clients. The nurses (n=287) surveyed stated that during the post-operative period, discharge instructions regarding use of devices to be used after discharge varied from 32% to 74%, depending on the devices in question. Since these devices are for the prevention of dislocation, these results are very discouraging.

In addition, Johansson et al. (2002) found that the perception of learning was scored much higher by the nurses delivering the education than the clients receiving the

education. Ninety per cent of the nurses interviewed in this study reported that they assessed all or many of the clients' learning needs; however, only 30% of the clients interviewed felt that their learning needs had been assessed. Clients in the age group of 60-69 years felt that they did not have a chance to discuss concerns with nurse educators when compared to those in the 20-29-year-old group. Suggestions arising from the study are that older orthopaedic clients have specific needs that require specific addressing. Johansson et al. (2002) also discovered that while the nurses felt that discharge education was adequate, clients felt that the limitations of their surgery and possible complications had not been addressed.

Education is beneficial if it helps prepare clients for surgery and early post-operative recovery (Showalter, Burger & Salyer, 2000). The consensus among the study participants was that they were not well prepared for post-operative recovery at home, especially for progression of their activities at home. One of the other concerns voiced by the participants was that it was not easy to transfer the skills learned in the hospital to the home environment. These skills included getting in and out of their non-adjustable lower home beds with limited side access. There were also questions about why exercises were necessary and why clients had restricted movements. Furthermore, clients felt there needed to be more focus on the transition period from surgery to recovery and also more preparation for discharge.

Summary of the Literature

Spalding (2001) noted gaps in the review of the literature specific to joint replacement surgery. She suggested that total hip replacement clients be studied before

and after pre-operative teaching, specifically in the immediate post-operative period but also later in the post-discharge period. Since recovery for total hip replacement surgery can be longer than eight to 12 weeks, interviewing clients at approximately three months' time may be more reflective of surgical outcomes. This is essential in order to determine whether or not the learning needs of older adults are addressed well with current pre-operative education. This study will focus on the retention of pre-admission information between the second and third post-operative period following hip replacement surgery.

CHAPTER THREE

METHOD

Research Design

A descriptive design was used to answer the following research question: What is the retention of pre-operative information among older adults between the second- and third-day post-op following a total hip replacement surgery?

Sample and Setting

The sample was a convenience purposive sample (n=40) of clients 64 years and older who had undergone total hip replacement surgery. The sample size of 40 was chosen based on availability of the clients undergoing this procedure. At present, approximately five total hip replacement surgeries are done weekly in the studied institution. According to Brinks and Woods (2001), a convenience sample is acceptable for an exploratory study.

Participating clients were limited to those able to speak and read English, were ambulatory, and lived in a private residence. The exclusion criteria for the study included alteration of cognition and longer-term medical conditions such as active cancers and renal failure requiring dialysis.

Instruments

An investigator developed questionnaire was used to determine the knowledge gained from pre-admission education. The questionnaire consisted of 11 situational and scenario-based questions written at a grade-six level (Appendix D). The questions were

based on precautions that were taught to the client in the preadmission clinic. It was anticipated that the situational and scenario-based questions would allow the researcher to explore the transferability of information regarding care of the total hip replacement into the home and social environments. The questionnaire was tested for face validity and content validity using four subject matter experts. These experts included two pre-admission staff who teach and distribute pre-admission materials and two nurse staff members who work with older hip replacement clients in the post-operative period. The questions required the client to respond verbally and the response was audio-taped by the researcher. In addition, clients were asked the date, time of day, and where they were to establish orientation prior to the delivery of the questionnaire.

Data Collection

The data collection commenced in January, 2008 and was completed in June, 2008. The collection took longer than anticipated due to an increasing number of younger clients obtaining this surgery who were outside the study criteria. An information letter (Appendix B) was distributed in the pre-admission clinic by the clinic staff. Posters (Appendix F) were also placed in client rooms informing clients of the study. Interested clients were approached by the researcher and information letters were reviewed. Consent forms (Appendix B) were signed and witnessed, and data was collected between the second and third post-operative day. Clients who demonstrated post-operative delirium or life-threatening complications from the surgery were eliminated from the study. Eligible and willing participants were asked their age and highest level of education, the date that they attended pre-admission clinic, and if they were accompanied by a family member or friend to the pre-admission session. They were then interviewed using a questionnaire

(Appendix D). The questions were formulated to collect data on the client's retention of pre-operative information and ability to use this information when discharged. The questions focused on the essential, emergent, and practical application of the pre-admission information. The participants were interviewed without company and there was no prompting on the part of the investigator to elicit correct or more desirable answers. Further clarification of the question was available when the questions were not clear to the client.

The answers to all the questionnaires were documented by hand and all but one of the interviews was audio-taped. One of the participants declined to have her voice on tape but was willing to continue with the questionnaire. Both the completed questionnaire and the taped responses were entered into a computer database.

The answers to the questionnaire were derived from the pre-admission teaching at the pre-admission clinic as well as from the information package (Appendix F). When a participant answered questions incorrectly or was unsure of the question being asked, the participant was then given further instruction by the researcher after the questionnaire was completed. It was felt that it would provide a unique opportunity to provide the participant with further information prior to discharge. This was considered imperative as the client should not be discharged if they had incorrect information or if they were unsure about what they needed to know to keep themselves safe at home.

Data Analysis

The data entry commenced and was completed in June, 2008. The data was analyzed using SPSS version 16 at the completion of the data collection. Frequency

distributions and measures of central tendency (mean, median, mode, standard deviation, and variance) were calculated for age, gender, and level of education. Data was entered for chi-square analysis to determine differences between gender, age, level of education and correct and incorrect answers. Data was coded for age ranges 64-75 and 76-86; gender as male and female; education at junior high and less and high school and greater. Individual questions were coded according to incorrect and correct answers based on preadmission information delivery.

Open-ended question responses were analyzed using content analysis based on how correct the response was. The correct response was taken from the literature that the clients were given in the pre-admission clinic as well as materials given during their pre-admission education. This data was then entered into the software for analysis.

Ethical Considerations

Ethical approval was granted by both the University of Alberta and the David Thompson Health Region before commencement of data collection. Each participant's confidentiality was guaranteed with diligence through keeping their consent and numbered questionnaires in separate secure locations, The participant's consents were kept in a locked drawer in the investigator's office in a monitored space. The questionnaires were kept in the researcher's home in a locked drawer. The questionnaires did not contain any of the names of the clients.

CHAPTER FOUR

FINDINGS

In this chapter, the findings for the research study related to the older adult client's ability to retain and apply the knowledge obtained through the pre-admission clinic in the means of both instructions and reading materials will be described. Of interest are the relationship of age, gender, and education on the correct/incorrect answers to the questionnaire.

Demographic Characteristics

The age of the study sample ranged from 64 to 86 years, with a mean age of 75.5 (Table 1). Of this sample, 52.5% were female with the remaining 47.5% were male. The education levels of the participants were as follows: 42.5% had junior-high education or less while 57.5% attained high-school education or post secondary education.

Table 1
Demographics

Characteristic	Dimension	Frequency	Percent
Gender	Female	21	52.5%
	Male	19	47.5%
Age	64-75	18	45%
	76-86	22	55%
Education	< Grade 9	17	42.5%
	High school & above	23	57.5%

All of the participants attended the pre-admission clinic and had their packages of information with them upon admission for surgery. Patients were accompanied by a variety of individuals including: spouse (52.5%), children (17.5%), extended family or friends (12.5%. The remainder of patients (17.5%) arrived alone.

Hip Precautions

Questions one to four of the questionnaire dealt with the participants' ability to choose safe seating outside the home. The purpose was to examine the ability of the client to select a chair that would not compromise hip precautions. Question one asked the participant to describe the characteristics of the type of chair they should sit it and question two required them to provide rationale for their answer. Patient teaching emphasized selecting a chair that would require hip flexion less than 90 degrees. Although having chair arms is helpful for mobility they will not prevent the potential for dislocation of the affected joint. Correct answers included a chair that was high, had a firm seat, and arms for easy in and out capabilities. Of the 40 participants interviewed, 72.5% knew to select a chair that was high, but only 47.5% of the same group could correctly indicate rationale for their choice. The concern with this population is to maintain a greater than 90 degree bend at the waist when seating.

In questions three and four, participants were asked to choose which toilet they would use in a public place and provide rationale for their choice. Although 82.5% chose a handicapped stall which has a higher toilet seat and handrails, only 57.5% gave hip precautions as their rationale for their choice. The remainder of the participants (42.5%) stated ease of entry as their rationale for their choice.

Table 2
Choice of public toilet

Choice of public toilet	*Frequency*	*Percentage (%)*
Handicapped	33	82.5
Standard	7	17.5

Questions six and seven in the questionnaire examined bed entry and precautions while sleeping. Patient teaching included avoidance of crossing midline and compromising the hip precautions. The participants were advised to enter with their unaffected leg first. Fifty per cent stated that they entered with affected leg first, potentially compromising crossing midline; 40% were aware of entering with the unaffected leg first; and the remaining 10% felt they could enter on either side. While participants were at rest in their beds, they were advised to sleep on the affected side with a pillow between their legs. Fifty per cent of the study sample was aware and compliant of sleep precautions with 12.5% being aware of precautions but choosing not to follow them. Seventeen and a half per cent slept on their back with comfort being the motivating factor; and the remaining 20% were unaware of any sleep precautions and stated confusion about what to do.

Table 3
Side of bed entry

Side of bed entry	*Frequency*	*Percentage (%)*
Affected hip	20	50
Unaffected hip	16	40
Either side	4	10

In question seven participants were asked to identify signs and symptoms of an infection in the surgical wound. Patient teaching emphasized redness, heat, increased drainage, pain, fever, and swelling to the surgical site. All (n=39) but one participant were aware of some or all of the signs of an infection. The majority correctly cited redness, drainage, heat, swelling, and malaise as some of the indicators of infection.

The teaching in the preadmission clinic and in their handouts advised the participants of the risk for infection in their affected joints due to dental procedures. In the pre-operative education sessions, participants were advised to inform their dentists about their hip replacement surgery prior to any dental procedures, as they should be started on a course of antibiotics to reduce any chance of infection at the surgical site. Forty-seven and a half per cent of the participants wore dentures, and therefore would not be affected by dental procedures such as cleaning. Of the remaining 52.5%, 57.14% were aware that they needed to inform their dentists regarding their recent surgery and obtain antibiotics. The remaining 42.86% were not aware of any antibiotic precautions.

Ambulation

Weight bearing status immediately following surgery was examined. Pre-op teaching emphasized that there were different levels of weight bearing status following surgery. This leveling was determined by the surgeon. The majority of the surgeons ordered full weight bearing for their clients which meant that they were allowed to put all of their weight on their affected limb. Partial weight bearing could also be ordered if the surgeon determined that there was a possibility of a fracture during insertion of the prostheses or if the clients' bones were deemed to be osteoporotic. Partial weight bearing

could vary from the client being able to touch their toes to the floor for balance or putting a determined amount of weight on the affected limb. Non-weight bearing would mean that the client would have to have to affected leg suspended while ambulating. Seventy-five per cent of the participants were aware of their status and the remaining 25% stated that they were not sure. Interestingly, it was noted during data collection that the weight bearing status in all 40 cases was written on a white board at the foot of the participant's hospital bed.

Use of crutches or other walking aides was also examined. Participants were asked when they would be able to stop using their walking aides. Twenty-seven and a half per cent of the sample stated that this was a decision made with their physician while the remaining 72.5% indicated that either they did not know or they could make that decision on their own.

Complications

During the preadmission sessions, a complication such as experiencing blood clots was brought to the attention of the participants. They were advised to seek medical help if they experienced any chest discomfort or shortness of breath. During the interview participants were given a brief scenario in which they were experiencing sudden shortness of breath and significant chest pain. They were asked what actions they would take. Seventy-seven and a half per cent of the participants correctly stated that they would seek immediate attention or call 911 while the remaining 22.5% stated that they would do little or nothing at all. Those who would not seek attention indicated that they would rest or that they were sure that nothing would go wrong following surgery.

Table 4 Results from questionnaire tabled by gender, age, and education levels

	Gender		*Age*		*Education*	
	Female	**Male**	**64-75**	**76 plus**	**Junior high and below**	**High school and above**
	N=21	**N=19**	**N=18**	**N=22**	**N=17**	**N=23**
Chose higher chair	17(81%)	14(74%)	14(78%)	17(77%)	13(76%)	18(78%)
Aware of 90 degree angle	11(52%)	8(42%)	11(61%)	8(36%)	7(41%)	12(52%)
handicapped stall	21(100%)	12(63%)	17(94%)	16(73%)	12(71%)	21(91%)
Aware of precautions	10(48%)	13(68%)	11(61%)	12(55%)	9(53%)	14(61%)
Entered on affected hip	11(52%)	9(47%)	11(61%)	9(41%)	9(53%)	11(48%)
Entered on unaffected hip	9(43%)	7(37%)	7(33.3%)	9(41%)	8(47%)	8(35%)
Entered on either side	1(4.8%)	3(16%)	0(0%)	4(18%)	0(0%)	4(17%)
Aware of sleep Precautions	10(48%)	10(53%)	10(56%)	10(45%)	8(47%)	12(52%)
Signs of infection	21(100%)	18(95%)	18(100%)	21(95%)	16(94%)	23(100%)
Aware of when to stop using crutches	5(24%)	6(32%)	3((17%)	8(36%)	11(65%)	18(78%)
Knowledge of weight bearing	15(71%)	15(79%)	15(83%)	15(68%)	12(71%)	18(78%)
Knowledge of actions in critical event	19(90%)	12(63%)	15(83%)	16(73%)	13(76%)	18(78%)
Precautions with dental care	N=12 9(75%)	N=9 3(33%)	N=9 7(78%)	N=12 5(42%)	N=7 3(43%)	N=14 9(64%)

Results of group comparisons on knowledge are provided in Table 4. There was a significant difference related to gender and knowledge of action to take in a critical situation. Women were more likely take action in the event that they experienced a symptom requiring immediate action ($\chi^2(1, N=40) = 4.269$, $p = .039$). . There was also a significant difference related to gender and choice of public toilet seat (χ^2 (1, N=40) = 9.378, $p = .002$. Again, women were more likely than men to choose the wheelchair stall.

Sources of Information

The final question required clients to identify where they found out about hip replacements, excluding the preadmission clinic. The majority (65%) stated that they found out about hip replacements from family and friends who had received this surgery. Fifteen per cent were informed by their family physician whereas the remaining 20% had received information from other health professionals (mainly nurses) from the Internet, television and radio, or other sources.

CHAPTER FIVE

DISCUSSION

In this chapter, the major findings of this study will be discussed and recommendations for nursing practice will be identified. Finally, study strengths, limitations and areas for future research will be presented.

Preparedness for discharge following total hip replacement surgery encompasses numerous factors. Dislocation of the hip is the most common complication (National Institutes of Health, 2001). Morrey (1997) found that dislocation after total hip replacement 'occurs at an overall incidence of 2% to 3%" and occurs more frequently in elderly and females clients. To eliminate this potential complication, clients are taught hip precautions. These precautions focus on maintaining a greater than 90° angle at the hip bend, not crossing the midline of the body with the affected leg, and maintaining good alignment of the affected limb by minimizing internal and external rotation of the hip. In this study, the majority of the questions focused on the patients' ability to retain information related these precautions and, apply it to situations after their discharge.

With some of the knowledge deficits identified in this particular population, the risk for dislocation could be higher than the incidence suggested in the literature. Up to 50% of participants either did not know the precautions or did not know the rationale for the precautions which then places them at increased risk of dislocation. Possible reasons for not knowing might include: not understanding rationale, not referring to the preadmission information, difficulty in remembering following surgery, or simply not feeling that the information was important enough information to retain.

The findings demonstrate that there was a fairly high percentage of participants who were unaware of precautions and about how they would make decisions to protect their hip after surgery. The scenario that was presented to participants and required them to choose a chair in a neighbor's home was designed to see if the participant could choose a chair that would not compromise the 90° angle at the hip joint. Although almost three quarters of the participants were able to choose a chair that would not compromise this angle, less than half were aware of the rationale for this choice. These findings are also reflected in the choice of public toilet selection. More than 80% of participants would choose the handicapped stall, which does fit the requirements for maintaining hip precautions. However, less than 60% of these same people could provide hip protective rationale. The remainder made the choice based on comfort or size of the stall. It is reassuring that the majority would be able to choose safe seating in both a home situation and in a public restroom, however it is still of great concern that up to approximately a quarter of the participants would not chose correctly, placing them at risk for dislocation. It is also of concern that approximately 50% are not making their choice with hip precautions in mind. Therefore, even if it was a correct choice, the individuals are at risk because they do not know the rationale for their choice.

To avoid crossing the midline of the body upon entry into the bed, it is suggested that the client enter with the unaffected leg only. Half of the study sample would enter with the affected leg. Forty percent would enter with the unaffected leg, and the remainder stated that they could enter from either side. This means that the majority of this sample has the potential for crossing midline thereby leaving the limb vulnerable for dislocation. Precautions for sleep were also examined with half of the sample being

aware of precautions during sleep that would avoid excessive rotation or crossing midline. A smaller percentage (17.5%), stated that they were back sleepers, and hence the precautions were not important to them. The remainder either slept on the unaffected side and/or lacked awareness of any precautions for sleep which again increases the risk for dislocation.

In the pre-admission clinic, these participants were informed that they needed to be advised by their own physician on both weight bearing status post-operatively as well as how long they were required to use walking aides. The focus of the rationale was that the participants needed to be evaluated by their physician to ensure that their safety in ambulating was not compromised. These participants' weight bearing status ranged from no weight bearing to full weight bearing, depending on their bone status and complications of the femoral shaft insertion. Awareness of weight bearing with this sample was high. The majority of participants were aware of how much weight they were able to put on their affected limb and felt that that this was a decision that they could make themselves. The implications of this would be that the participants are making a decision regarding their care that is out of their level of expertise. Only about a quarter of the participants were unaware of any weight bearing status and a similar number felt that the decision needed to be made with the physician. Although weight bearing information was written on a white board at the foot of patient beds, it is unclear if they were unable to read the note, thought that the information on the board was not for them, or if the note was not brought to their attention. It would seem that the white board and the information written on should be revisited with the client.

National Institutes of Health (2006) included other complications following hip replacement surgery such as infections, pulmonary emboli, and blood clots as potential life-threatening outcomes. Therefore, preparation for discharge also encompasses clients' awareness of other health risks. Identification of common signs of infection with a surgical wound was very high, with 97.5% of this sample having awareness of common indicators of infection. Although the normal inflammatory response shares some of these symptoms, the question was stated in a future tense indicating that this was a change from what their incision had previously looked like. It is reassuring that the study participants were able to identify these signs of infection as it would set them up for early recognition and hopefully enable them to seek medical help as necessary.

There is also an added risk of deep infection to the hip replacement with dental procedures (client information booklet). No literature was found that indicated how often that clients experienced infections following dental procedures. Clients are informed through both pre-admission instruction and their booklets (Appendix F) that they need to inform their dentists that they require antibiotics when having dental procedures. Of the population who had their own teeth, 52.5% were aware with the remainder not being aware of any concerns about having dental work. If these participants are not aware of the risk for deep infection with dental procedures, this places an increased amount of responsibility on the dental community to screen their clients.

The ability to identify life-threatening complications from total hip replacement such as pulmonary emboli or blood clots is important information for the clients (National Institutes of Health, 2006). Of the sample in the present study, the majority would take immediate action such as calling 911 or seeking immediate help when faced

with life-threatening and/or emergent symptoms. It is reassuring that the majority of clients in this study would seek help when confronted with possible life threatening symptoms. However, it is of concern that nearly one quarter would rest or ignore these symptoms thus putting themselves at risk for more significant complications, including death.

When Edwards (2003) interviewed a group of 19 orthopaedic clients following surgery, a recurring topic that emerged was the clients' desire to know what their journey through surgery and after surgery would entail. One of the concerns that emerged from the Edwards's study was that the healthcare team may assume that the client is knowledgeable due to the fact that instructions and teaching have been provided to the client but in fact as the findings of this study suggest, this may not be the case. Instead of assuming that the client knows the information, it would be more advantageous to the client if their level of knowledge was regularly evaluated.

The preadmission clinic at the site in which this study took place is across the street from the hospital where the surgery took place. The delivery of information is done in small group settings approximately two to four weeks before the surgery. The delivery of material is given is a relaxed manner and clients are encouraged to bring someone with them. During their teaching sessions, they continually invite questions. In a study examining the link between preoperative education and anxiety, Spalding (2003) found that patients who were well informed about what to expect following their surgery were found to prepare themselves for discharge by raising beds and chairs in their homes and ensured that they had aides and someone to help them once they returned home. Spalding

also concluded that making information known about the postoperative period could reduce anxiety both in the preoperative and postoperative period (2003).

The written instructions provided for the client is in font size ranging from Arial 11 to Arial 16 which is consistent with recommendations for creating teaching materials for teaching older adults. Exercise logs are printed in Arial 9 which is a smaller font size. The material is black lettering on white background which is consistent with the importance of contrast suggested in the literature (Best, 2001). Estey (1993) suggested that preadmission information be evaluated on its readability focusing not only on the simplicity of the information but also on the comprehension of the information. The reading level also should be no higher than a grade five level. The reading level of the printed material that the clients in the study received was a grade nine level and therefore at a higher level than recommended.

Retention and application of the pre-operative information has not been examined but has been identified as a need by researchers such as Stern and Lockwood (2005). It is clear from this study that while many patients may recall pre operative teaching related to hip replacement surgery, they do not necessarily recall the rationale supporting the information. This could significantly affect application of the information in activities of daily living.

Summary

The results from this study indicate that the retention of pre operative information that each person received varied depending on the individual area of knowledge being evaluated. There were significant knowledge deficits in all areas of hip

precautions following hip replacement surgery. These included choice of chairs to sit on, choice of public toilet seats, bed entry and sleeping position. More importantly there were significant deficits in understanding the rationale underlying the precautions. There were also deficits in knowledge related to being able to identify signs and symptoms of complications and dental precautions required post hip replacement.

This identification clearly indicates the need for continued reinforcement of pre op teaching in the post operative period following hip replacement surgery. A refined version of this questionnaire could be utilized as part of the discharge process in similar settings..

Limitations

It is unknown how many of these participants read the handouts provided for them or even how many were attentive during the presentation of preoperative information. There was also no measure of anxiety which is known to interfere with knowledge retention. It would have been interesting to determine how many patients had already made home modifications prior to their surgery in preparation for discharge. It would also have been helpful to determine the knowledge and application level of individuals who accompanied the clients.

Implications

The findings of this study suggest implications for nursing practice. It is clearly not sufficient to only review discharge teaching with the client without assessing their understanding of the information. It is essential that nurses do not assume that patients understand and can apply information once they have heard it. Nurses need to evaluate

what patients understand and if they know how to use the new knowledge once they leave the hospital environment. Nurses also need to ensure that patients understand the rationale for all precautions. If they do, it is more likely that they will follow the precautions and limit chances of post operative dislocation.

The findings also suggest areas for further research. Since this study focused on pre discharge understanding, follow-up with the clients immediately following discharge and then at the 2 week, 1 month, or 3 month times is suggested to further evaluate how the client is adjusting to the home environment. Interviewing clients at approximately three months post discharge may be more reflective of surgical outcomes. Follow up with clients can also be accomplished by the use of telephone interviews after discharge (Ouellet, 2003). There is a cost to follow-up phone calls, but the benefits from early intervention in the early discharge period might outweigh the cost.

These particular clients experienced a fairly traditional form of pre-operative teaching. Altering the format of the pre-operative teaching to include more interactive strategies as Lewis and Gunta (2002) suggest and specific post-discharge situations could be explored. Although this might involve more time, it may set the client up for greater success in the postoperative period.

The findings from this study will be discussed with staff from the preadmission clinic and the surgical unit where the study occurred. An abstract for the study will be submitted to the local College Research Day. An article based on the study will be submitted for publication in a peer reviewed journal.

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APPENDIX A: Ethics Approval

DAVID THOMPSON HEALTH REGION

Research and Evaluation, Knowledge Management
Wetaskiwin Health Centre
5610 – 40 Ave.
WETASKIWIN, AB T9A 3E4
Phone: 780-361-4390 Fax: 780-361-4335

January 3, 2008

Katherine Mullin

Dr. Bev Williams
University of Alberta
3rd Floor Clinical Sciences Building
EDMONTON AB T6G 2G3

Dear Dr. Williams and Ms. Mullin:

At a meeting of the Research Committee on December 20, 2007 your proposal for research entitled "Retention of preoperative information among older adults who undergo hip replacement surgery" (Research ID#186) was approved.

Enclosed, please find the Letter of Agreement which outlines the conditions for the conduct of the research within the DTHR. We have also attached a Confidentiality Agreement in accordance with DTHR research approval policies. Please coordinate signatures with Julaine Herst (780-492-7885) who is the U of A Research Services Office staff member designated to the faculty of Nursing. Julaine will require all documentation listed in section 1.1 of the contract.

Please note that the department compensation and 15% levy have been waived for this project.

The Research Committee requires an annual and final report from approved studies. Also, if there are any changes to the research protocol, you must send those changes to our committee for review.

Please inform Dr. Service (Research and Evaluation) and Dr. Bredo (Central Alberta Research) when you plan to commence this study.

Please accept my and the committee's best wishes for success in your project.

Sincerely,

Steve Clelland
Research Committee Chair

enclosures: Letter of Agreement, Confidentiality Agreement

cc: MAC
Penny Richey, Program Director, Surgical Services
Dr. Brigitte Crepeau, Surgical Services
Dr. Bredo, Central Alberta Research
Robert Swanson, Unit 21
Dr. Arron Service, Research & Evaluation Officer
Julaine Herst, U of A Research Services Office

Health Research Ethics Board

213 Heritage Medical Research Centre
University of Alberta, Edmonton, Alberta T6G 2S2
p:780.492.9724 (Biomedical Panel)
p:780.492.0302 (Health Panel)
p:780.492.0459
p:780.492.0429
f:780.492.7868

HEALTH RESEARCH ETHICS APPROVAL FORM

Date: October 2007

Name of Applicant: Dr. Bev Williams

Organization: U of A

Department: Nursing

Project Title: **Retention of preoperative information among older adults who undergo hip replacement surgery**

The Health Research Ethics Board (HREB) has reviewed the protocol for this project and found it to be acceptable within the limitations of human experimentation. The HREB has also reviewed and approved the subject information letter and consent form.

The approval for the study as presented is valid for one year. It may be extended following completion of the yearly report form. Any proposed changes to the study must be submitted to the Health Research Ethics Board for approval. Written notification must be sent to the HREB when the project is complete or terminated.

Special Comments: The Research Ethics Board assessed all matters required by section 50(1)(a) of the Health Information Act. Subject consent for access to identifiable health information is required for the research described in the ethics application, and appropriate procedures for such consent have been approved by the REB Panel.

NOV - 8 2007

Dr. Glenn Gruneir, PhD
Chair of the Health Research Ethics Board
(3: Health Research)

Date of Approval Release

File Number: B-24107

UNIVERSITY OF ALBERTA

Capital Health

CARITAS HEALTH GROUP

APPENDIX B: Information letter & Consent Form

What is the purpose of the study? The purpose of the study is to determine how people who have a hip replacement are prepared for the discharge to home. This will help us to determine how well the information you receive in preadmission prepares you for discharge.

What will happen? Katherine Mullin is a Master of Nursing student. She will ask you a few questions on the second or third day after your surgery. Katherine will record your answers while you are talking. This is to ensure that she doesn't forget what you have told her.

How much time will be taken? The interview will take about 30 minutes.

Are there any risks/benefits? There are no known risks from being in this research study. It is possible that you have not remembered important information for taking care of your new hip at home. This will give you a chance to make sure you do know how to care for your new hip at home.

Participation in this study? You do not have to participate in this study. You have the right to refuse to answer any question. You can drop out whenever you wish. You do not have to give a reason for dropping out. Just tell the interviewer that you do not wish to continue with the interview. Your care will not change if you are in the study. If you decide not to be in the study or drop out, your care will also not change.

Privacy and confidentiality Your name will not appear on the questionnaire or in any reports about this research. The answers to the questions will be kept in a locked drawer. The consent forms will be kept in a different locked drawer. Your name cannot be linked to the information you give us. All reports will include only group information. These documents will be kept for seven years and then they will be destroyed. Only Katherine's supervisor will have access to the information. The findings from this study may be published or presented at a conference.

Contact Names/Phone Numbers If you have any concerns about your rights as a study participant, you may contact Dr Christine Newburn-Cook . She is the Associate Dean for Research in the Faculty of Nursing. Her phone number is 780 492-5929.

You may also contact Linda Moore-Martin, Chair of the Nursing Department at Red Deer College. Her phone number is 403-342-3270

Katherine Mullin may also be contacted at 403-342-3501.

Title of Project: *Retention of Pre-operative Information among Older Adults who Undergo Hip Replacement Surgery*

Investigator: Katherine Mullin, BScN, MN (student)

Faculty of Nursing

University of Alberta

Phone: 780-342-3501

Co-investigators:

Bev Williams, PhD, RN	Pauline Paul, PhD, RN	Sharon Warren, PhD
Associate Professor	Associate Professor	Associate Professor
Faculty of Nursing	Faculty of Nursing	Dept. of Rehabilitation Medicine
University of Alberta	University of Alberta	University of Alberta
Phone: 780-492-8054	Phone: 780-492-7479	Phone: 780-492-7856

	YES	NO
Do you understand that you have been asked to participate in a research study?		
Have you read and received a copy of the attached information sheet?		
Do you understand the benefits and risks involved in taking part in this research study?		
Have you had an opportunity to ask questions and discuss the study?		
Do you understand that you are free to refuse to participate or withdraw from the study at any time? You do not have to give a reason and it will not affect your care.		
Has the issue of confidentiality been explained to you? Do you understand who will have access to your records/information?		
Do you give us permission to audiotape the conversation?		

This study was explained to you by:

Researcher

Printed Name _____

Date _____

_____

Please sign below to indicate that you agree to take part in this research study.

Signature of Participant

_____

Printed Name _____

Date _____

_____

I believe that the person signing this form understands what is involved in the study and voluntarily agrees to participate.

Researcher

_____

Printed Name _____

Date _____

_____

APPENDIX C: Client Demographics

ID #_____

Please fill in the following information

Today's Date _____

Time _____

Place _____

Age _____

Gender _____

Circle the highest level of education: Junior high school or less

High school

Post-secondary education

Date of pre-admission clinic information session _____

Did you attend the pre-admission clinic alone? YES NO

If no, who accompanied you? _____

APPENDIX D: Questionnaire

ID#_____

1. **When you go to sit in another person's home following your hip replacement surgery, describe the type of chair that you should sit on.**

2. **Why should you choose this type of chair?**

3. **You have decided to go out to your favourite restaurant for a special meal. You need to use the washroom. Which stall would you use?**

4. **What do you need to think about regarding precautions for your hip before you sit down on the toilet?**

5. **Which side of the bed do you enter in on when you go to lie down?**

6. **When you are preparing for sleep, what precautions do you need to keep in mind regarding your hip when you are lying down?**

7. **Assume that you examine your hip replacement wound when you get home. What things would indicate that you might have an infection?**

8. **When are you supposed to stop using your crutches after your hip replacement?**

9. **When you stand for the first time after your hip replacement, how much weight are you supposed to put on your surgical leg?**

10. **If you become short of breath or experience chest discomfort after your hip replacement surgery, what actions should you take?**

11. **If you wear dentures, then do not answer this final question. After you have hip replacement surgery, what precautions does your dentist need to be aware of before he does any dental procedure?**

12. **Where have you received information from regarding your hip replacement?**

APPENDIX E - Poster

Are you having a hip replacement surgery?

Nurse researchers from the University of Alberta are interested in interviewing individuals undergoing this procedure. If you are over 65 years of age and live in the David Thompson Health Region we would like to talk to you. Your participation in this study can help health professionals better understand the learning of individuals such as yourself. A nurse will interview you for approximately 30 minutes two to three days following your surgery.

If you are willing to be interviewed, please contact Kathy Mullin RN at (403) 342-3501 (work) for further information.

APPENDIX F Preadmission Information

ALBERTA BONE & JOINT INSTITUTE HEALTH

TOTAL HIP REPLACEMENT SURGERY

PATIENT INFORMATION GUIDE

10/10/2006

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TOTAL HIP REPLACEMENT SURGERY

This guide is intended to help you prepare for and recover from your total hip joint replacement surgery. By taking a few minutes to read this information, you will have the benefit of knowing what to expect when you have your surgery, and what to do during your three- or four-day hospital stay and during your recovery at home.

The guidelines, tips and advice you will find in the following pages have been provided by a team of orthopaedic surgeons, anaesthesiologists, nurses, physical therapists and occupational therapists from the Capital Health, Calgary Health and David Thompson Health Regions, and the Health Resource Centre. You may have questions as you read through the information. Please write them in the space provided at the back of this guide. Do not hesitate to discuss the questions with your care providers (physicians, nurses, physical therapists, occupational therapists) at your Hip and Knee Clinic teaching appointment, during your hospital stay or following your return home from hospital.

Please bring this guide with you when you visit the Hip and Knee Clinic, attend therapy sessions and go to the hospital.

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Your Journey Is About to Begin

Now that you have been diagnosed as requiring a hip replacement, your health care providers are going to do all they can to make the surgery a success so that you can return pain-free to the activities you enjoy.

Your success, however, also depends on you. How well you prepare for surgery and the efforts you make after surgery will be significant factors in how quickly and to what degree you resume your normal life.

This is truly a team effort. It involves surgeons, nurses, therapists, educators – and you. These specialists are your health care providers.

Your provider team is assembled and managed by a Case Manager who will ensure you receive care and guidance tailored to your individual needs and circumstances – from surgery through to rehabilitation and, if necessary, lifestyle change. Your Case Manager will also ensure you know what you must do to prepare for and recover successfully from your surgery, and will monitor your progress and help address your concerns and questions.

Your health is the most important asset you have. It is so important that your responsibilities and those of your care providers will be set out in a hip replacement contract.

Your journey through an improved and more efficient and effective public health care system for hip surgery is about to begin. The guidelines, tips and advice you read in the pages that follow are critical parts of the path ahead. Let's work together to make your journey successful and satisfying.

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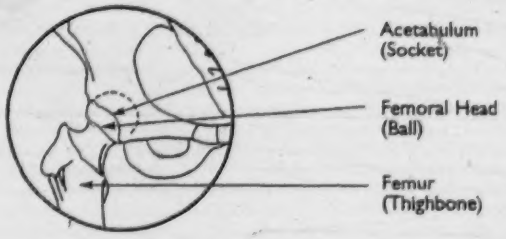
What Is a Total Hip Replacement?

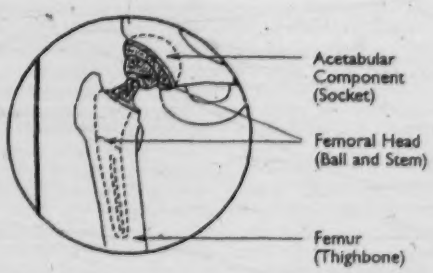
The hip is known as a "ball-and-socket" joint. In a healthy hip, smooth tissue called articular cartilage covers the surface of the bones that make up the joint, allowing it to move smoothly without pain.



In an unhealthy hip, the joint cartilage may be worn away and surfaces may become irregular, causing pain and stiffness when moving the joint. This is a form of arthritis called chronic degenerative disease. Arthritis of the hip is one of the most common conditions treated by a total hip replacement.

A hip replacement is considered when pain is severe enough to disrupt your sleep or restrict your usual daily living activities, such as work, leisure and sports. Following total hip surgery, your doctor will advise you about specific restrictions to your activities, particularly those that put excessive strain on your hips, including high-impact sports. You will need to follow the long-term precautions outlined in this booklet to benefit as much as possible from your hip replacement.

A total hip replacement involves replacing your damaged hip with an artificial one (a prosthesis). The prosthesis consists of a stem, a ball and a socket. The ball and stem replace the head of your thigh bone (femur), and the socket replaces your natural socket (acetabulum). These prosthesis parts may be made of metal, plastic or ceramic.



There are several types of prostheses in use today. The type you need will depend upon the condition of your hip, as well as your height, weight, age and activities. Your surgeon will discuss with you the type of prosthesis most appropriate for your needs.

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Be Prepared for Your Surgery

Be as healthy as possible . . . maintain a healthy diet and get plenty of rest. Ensure that any health issues, particularly dental, vision, prostate and urinary tract problems, are dealt with prior to surgery. Have prescriptions refilled.

Notify your Hip and Knee Clinic Case Manager immediately if you experience any change in your health while waiting for surgery, and ensure your Case Manager is aware of any allergies to medication.

Stay active . . . continue to do all your regular activities. Begin strengthening your leg immediately by following the simple exercise routines shown on pages 19 and 20 of this guide, and add arm strengthening exercises.

Be informed . . . ask questions. Be sure you understand what will be done and what you are agreeing to when you sign the surgery consent form. Read this information guide prior to your Hip and Knee Clinic education appointment and write down your questions or concerns.

Arrange for help at home . . . you will most likely be in hospital 3 to 4 days . . . so make plans for your return home after surgery. Arrange for help with tasks such as housework, dressing, meals, yard work, banking, etc. Before surgery, stock up on groceries, make frozen meals, have required equipment and walking aids ready.

Quit (or reduce) smoking . . . smoking delays healing. However, do not change your smoking habit the night before surgery if you have not been able to quit or cut back.

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Things to Do

- Discuss your surgery with your family or support group and explain how they can help you after your surgery.
- Arrange to have someone bring you home from the hospital.
- Arrange to have someone stay with you (or someone with whom you can stay) for a week or more after surgery.
- Do activities such as grocery shopping and banking ahead of time.
- Have heavy housekeeping activities, such as vacuuming and laundry, done ahead of time and arrange for help with these after surgery.
- Prepare meals and freeze them.
- Rearrange kitchen equipment and items in other rooms so they are within comfortable reach when standing.
- Rearrange furniture so that you have space to move around safely using a walker or crutches.
- Remove loose mats or clutter that could be a safety hazard.
- If needed, ask your doctor for a temporary handicapped parking pass.
- Make sure you have the right type of chair (see section "Managing at Home").
- Remove shower doors and replace them temporarily with a shower curtain.
- Install handrails on stairways or arrange to have someone assist you with going up and down stairs when you first arrive home.
- **Arrange to borrow, rent or purchase equipment you will need after surgery (see section "Be Prepared for Your Discharge" on page 9).**

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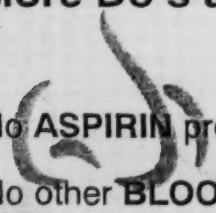
More Do's and Don'ts



No **ASPIRIN** products for **10 DAYS** before surgery.

No other **BLOOD THINNING** products for **7 DAYS** before surgery (you must be monitored by your family doctor).

No **HERBAL** products for **7 DAYS** before surgery.

No **IBUPROFEN** products for **5 DAYS** before surgery.

You may continue to take Tylenol and vitamins.

Do not drink **ALCOHOL** for **48 HOURS** prior to your surgery.

Do not **EAT** or **DRINK** after **MIDNIGHT** prior to surgery.

Hip and Knee Clinic staff will tell you which of your regular medications to take the morning of surgery. Bring the rest of them to the hospital. Once there, a health professional will tell you which ones you should take before surgery.

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What to Bring to Hospital

- Personal care items, such as toothbrush and toothpaste, hair brush, soap and shampoo, deodorant, shaving items, housecoat and pajamas. Please label all personal belongings.

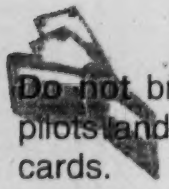
- Loose-fitting clothing, underwear (boxer shorts), socks and supportive non-slip shoes.

- **All your medications, including all prescription drugs, over-the-counter drugs, herbal remedies and inhalers.** Bring these medications in their original containers or in the pharmacy package.

- Crutches and dressing aids, such as reachers and long-handled shoe horns.

- Bring this information guide.

Storage space in the patient rooms is limited so please pack sparingly in a small overnight bag.



Do not bring personal electronic items, such as lap-top computers, palm pilots and cell phones, or **anything of value**, such as jewelry and credit cards.

Notes:

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Be Prepared for Your Discharge

IT IS VERY IMPORTANT THAT YOU HAVE ANY REQUIRED EQUIPMENT ***BEFORE*** YOU GO TO THE HOSPITAL FOR SURGERY. Having the equipment in place ahead of time will give you the opportunity to practice with it before surgery so that you can manage better at home after you leave the hospital.

Plan to have the following equipment for approximately 3 months following surgery to help protect your hip and reduce the risk of hip dislocation during activities of daily living:

- ☐ Crutches and/or walker
- ☐ Raised toilet seat (preferably with armrests)
- ☐ Bath seat/shower seat
- ☐ Detachable tub grab bar (not recommended for fibreglass tubs)
- ☐ Non-slip bath mat
- ☐ Reacher
- ☐ Stocking aid, elastic shoelaces and long-handled shoe horn
- ☐ Long-handled sponge/brush
- ☐ Other _____

These items can be:

1. Rented from a medical and surgical supply store (or pharmacy for walking aids). These are listed in the Yellow Pages phone book under Home Health Care Supplies.
2. Borrowed from STELP (short-term equipment loan pool) or the Red Cross. You must have a signed request from your therapist to borrow from STELP.
3. Borrowed from friends or family (must be in good working order and safe).
4. Borrowed from the Community Health Unit (out-of-town patients).
5. Purchased from a medical and surgical supply store.

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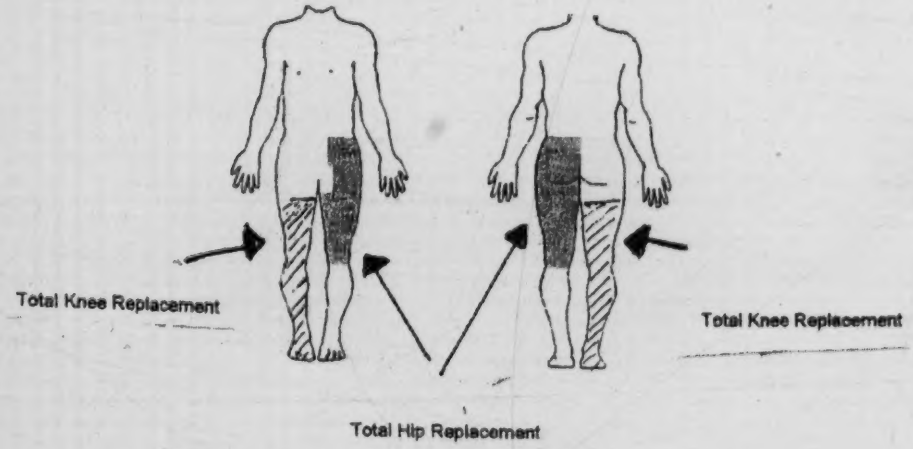
The Day of Surgery

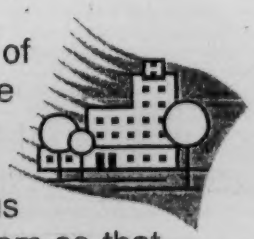
Using the Antiseptic Sponge at Home

Shower at home the morning of your surgery using the antiseptic sponge you were given at the Hip and Knee Clinic. Rub the sponge over the skin surrounding the area of surgery until it becomes foamy from the antiseptic soap. Rinse away the soap and towel dry.

Contact the Hip and Knee Clinic nurse if you have any questions.



Arriving at the Hospital



You will be checked in by the admitting nurse on your day of surgery. A health care provider will confirm that you have followed your preoperative instructions and prepare you for surgery. Tell the nurse or doctor of any changes in your health since the Hip and Knee Clinic visit. An intravenous drip (IV) will be started before you go into the operating room so that medication and fluids can be given during and after surgery.

A family member or a friend may stay with you until you go into the operating room.

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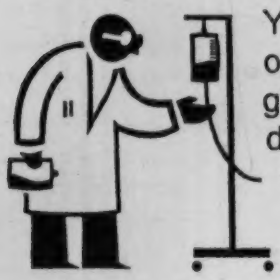
In the Operating Room



You will meet the anaesthesiologist before you go into the operating room. The anaesthesiologist is responsible for giving you medication, called anaesthetic, to reduce pain during your surgery. He or she will discuss with you the type of and the procedure for the anaesthetic to be used.

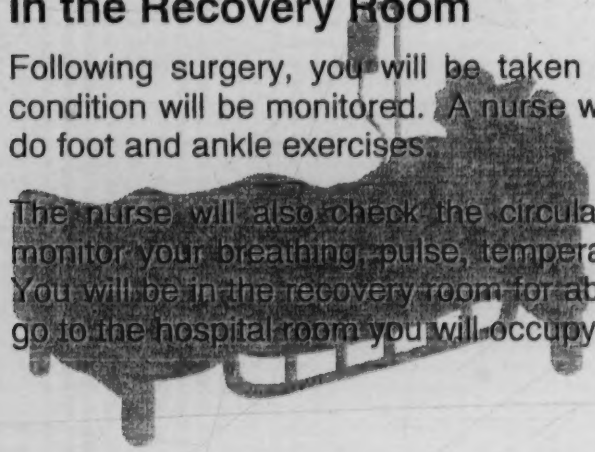
You will be given the anaesthetic when you are on the operating table. A spinal anaesthetic is used most commonly. It numbs the lower part of the body but leaves the patient awake during surgery.

You will see different types of equipment used to monitor your condition during surgery, such as a heart monitor, a blood pressure cuff and an oxygen sensor attached to your finger.

Surgery involves making an incision in your hip, removing the damaged cup and ball parts and replacing them with a prosthesis, which is inserted through the incision. The muscles are then sutured and the skin is stapled or sutured closed. A dressing is applied over the area. A catheter will likely be placed in your bladder to drain the urine. If required, a hemovac will be inserted into the operative area to drain excels fluids/blood.

In the Recovery Room

Following surgery, you will be taken into the recovery room where your condition will be monitored. A nurse will ask you to take deep breaths and do foot and ankle exercises.



The nurse will also check the circulation and sensation in your leg and monitor your breathing, pulse, temperature, blood pressure and pain level. You will be in the recovery room for about an hour or until you are ready to go to the hospital room you will occupy for the next 3 to 4 days.

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In Your Hospital Room

Family members will be invited to your bedside once your nurse has checked your condition.

Your breathing, pulse, temperature and blood pressure will continue to be monitored once you are in your room. You will still have an intravenous to provide fluids and medication. You will now be awake enough to notice other tubes. You will have an oxygen tube resting under your nose and you may have a catheter in your bladder, as well as a drain (hemovac) in your hip. A nurse will show you where the call bell is located and how to use it to call for assistance. The side rails on your bed will be raised until the effects of the anaesthetic have worn off.

A pillow will be placed between your legs to keep your hip properly aligned and your legs apart while in bed to reduce the risk of hip dislocation.

Post-operative pain management is very important. You must tell the nurses when you are feeling pain and ask for medication. When your pain is well controlled, you can perform leg exercises and daily activities more effectively and get the rest you need to recover.

You will be encouraged to breathe deeply and cough frequently to prevent post-operative lung problems.

At first, do not try to change your position or get out of bed without the help of a nurse. You will be shown how to use your arms and healthy leg to change positions in bed. Your physical therapist or nurse will tell you when you are ready to change your position in bed, sit at the edge of your bed, sit up in a chair without help, get out of bed and begin walking. You will stand on the day of surgery and be encouraged to walk.

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After Surgery

Pain Management after Your Surgery

Your heath providers want to make your stay in hospital as comfortable as possible. With proper pain management, you should not experience *severe* pain after surgery. However, you will experience some pain even when you take pain medication.

Pain control is important because:

- With less pain, you will be more mobile and active. This will aid in preventing post-operative complications such as pneumonia and blood clots.
- With less pain, you will be more comfortable, less tired and better able to tolerate the activities required of you. You will also recover more quickly.

Please read the following information carefully. It will help you and your health providers work together to develop an effective pain control plan.

How You Can Help Control Your Pain

- Tell your health care providers about your concerns and any allergies to medication, and ask questions.
- Inform your health care providers when you begin to have pain. Do not wait until the pain worsens.
- If you have had previous surgeries, tell your health care providers which pain medications were most effective and which, if any, you prefer.
- Give your health care providers the names and quantity of all medications you were taking prior to being hospitalized for surgery.

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The Pain Scale:

The following pain scale is an important tool you and your health care providers will use to monitor your pain. You will be asked to rate your pain level using this scale.

0	1	2	3	4	5	6	7	8	9	10
(None)										(Severe)

Medication for Controlling Your Pain

1. **Oral Medication:** You will be given pills to control your pain when you start eating and drinking following surgery. You can expect to start oral pain medication sometime during the first or second day after surgery. Nurses will continue to give you pills for pain control, as you will need them for the duration of your stay. Your doctor will write you a prescription when you are discharged from hospital so you can continue taking your medication at home, as needed.

2. **Intravenous (IV) Route:** In this method, the pain medication is mixed into a small IV bag and hung beside your regular IV solution. It is then transfused into your bloodstream. Nurses will frequently check your vital signs and ask you to rate your pain level on the pain scale.

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Diet

An IV will be used to provide the nutrition and fluid you need until you are able to eat and drink enough on your own. Once you are able to eat and drink, your diet can be expanded as long as it does not make you nauseated.

It is important that you eat a well-balanced, high-fibre diet following surgery and after you are discharged from hospital. Certain foods promote healing and increase energy level and strength. Eating healthy food also helps avoid infections and prevent constipation.

Calcium helps heal bones and keeps them strong. Good sources of calcium include milk, yogurt, cheese, canned salmon, soy, calcium-fortified tofu and milk rice.

Protein is needed to heal tissue and strengthen muscles. Foods such as beef, pork, fish, poultry, eggs, milk, dairy products, soymilk, beans, nuts, peanut butter and tofu are good sources of protein.

Iron is necessary to build the hemoglobin in your blood, which carries oxygen to your tissues. Blood loss from surgery can decrease your hemoglobin and make you feel weak, tired and light-headed. Good sources of iron include: red meat, fish, poultry, canned oysters and clams, tofu, fortified whole grains and some leafy green vegetables such as spinach.

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Bowel and Bladder Management

The catheter inserted to drain your bladder during and after surgery will be removed the following morning.

You may feel some abdominal bloating and gas pains in the days following your surgery. Nurses will use a stethoscope to listen to your abdomen for bowel sounds. These sounds are natural and are a sign your bowel is returning to normal. You will usually start passing gas soon after bowel sounds are heard.

The pain control medication you will take after surgery often causes constipation. Nurses will encourage you to take the following measures to prevent constipation and help your bowel return to normal function:

- drink at least eight cups of water a day;
- eat a high-fiber diet; and
- go for frequent short walks.

You must continue these preventative measures for at least as long as you are taking the pain medication.

You should have a bowel movement before being discharged. Nurses will offer you stool softeners or natural laxatives. It is important to tell the nurse when you have had a bowel movement.

Personal Hygiene

Nurses will assist you with personal hygiene until you are able to do this yourself. You will receive basin baths at the bedside or sit in a chair next to the sink the day after surgery. Your doctor will tell you when you may have a shower.

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Rest and Exercise

Both rest and exercise are needed for a healthy recovery. You will tire easily the first few weeks after your surgery. Let the way you feel be your guide. Stop what you are doing and rest when you begin feeling tired. You will benefit more from short, frequent walks than from one long walk.

Rehabilitation

You will be assisted in moving from your bed to a chair and will be standing and, if able, walking within the first 4 to 8 hours after surgery. Your level of activity will increase on a daily basis. You will also begin a rehabilitation program to help improve the range of motion and maintain the muscle strength in your new hip.

- Your doctor will decide how much weight you will be allowed to put through your operative leg. Your health care team will provide instructions and guidance and you can also refer to your hospital discharge instruction sheet.
- Your physical therapist will teach you to walk with the required walking aid(s) and teach you the exercises that will be an important part of your post-operative rehabilitation.
- An occupational therapist will review and suggest modifications to your activities of daily living (ADL), such as dressing and bathing, if you are having difficulty with skills that you will need at home.
- Your level of independence with exercises, and your mobility and home management skills will be assessed. Based on this assessment, the health care team will recommend a discharge date and community services you may require.

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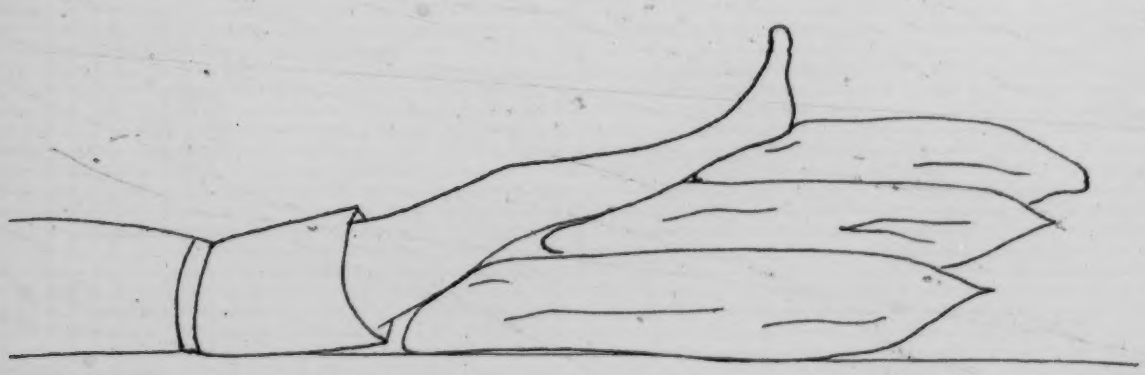
Avoid Excessive Leg Swelling

Your surgical leg may swell as you become more active following surgery.

To reduce the swelling, lie down with your leg elevated 2 to 3 times per day for 45 minute at a time. Use pillows to support your elevated leg, keeping the knee as straight as you can tolerate. Your foot should be above the level of your heart.

A cold pack can also be applied to the hot or swollen area. Use crushed ice in a bag, an instant cold pack or a bag of frozen peas or corn. A thin damp towel should be placed between the skin and the cold pack to avoid damaging the skin. Do not leave the cold pack in one place for more than 15 minutes at a time.



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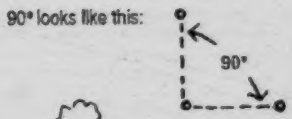
Hip Movement Precautions

There are many routine movements and activities that can damage or dislocate your new hip following surgery. Here are some simple *do's* and *don'ts* you should follow in the hospital and at home to protect your hip and promote healing.



Bending (hip flexion)

- **Avoid** bending your new hip beyond 90 degrees
- **Avoid** bringing your knee higher than your hip when sitting
- **Avoid** reaching down for objects on the floor

Do

Don't

Don't

Don't

Don't

Turning (hip rotation)

- **Avoid** rotating your operated leg inward when standing, sitting or lying
- **Avoid** twisting on your operated leg when standing and walking

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Crossing (hip adduction)

- **Avoid** bringing your leg across the mid-line of your body
- **Avoid** crossing your legs at the knee or ankle when sitting, standing or lying

Do

Don't

- You **must** have pillows between your legs when sleeping on your back or side

Don't

Do

Weight Bearing

- **Put weight on the operated leg only as instructed by your doctor and health care team**
- You **MUST** use your walker or crutches until advised otherwise

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Hip Exercises

- It is important to strengthen your hip prior to surgery and to gradually increase both the strength and range of motion in your new hip following surgery.
- The following exercises should be done on both legs before and after surgery to improve your recovery. Do a little at a time but often. To start, do the exercises at least twice a day with 5 to 10 repetitions of each, gradually increasing the frequency.
- Do all exercises slowly and with control.

Exercise # 1

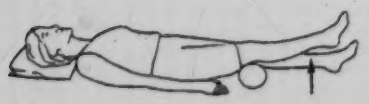
Lying on your back, roll your leg inward only until toes point toward ceiling. Hold 5 seconds. Repeat _____

Exercise # 2

Bend your _____ hip and knee, sliding your heel along the bed toward your buttocks. Keep your knee facing the ceiling. Repeat _____

Exercise # 3

Slide your _____ leg out to the side and back to mid-line only. Keep your knee straight and facing the ceiling. Repeat _____



Exercise # 4

Place a roll under your _____ knee. Straighten the knee, lifting your foot off the bed. Hold 5 seconds, then lower foot slowly. Repeat _____

Exercise # 5

Sitting with your thigh supported, straighten your _____ knee and lift the foot off the floor. Hold 5 seconds, then lower slowly. Repeat _____

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Exercise # 6

Sitting with _____ foot on a smooth surface, slide foot back towards chair. Hold 5 seconds, then slide foot forward. Repeat _____

When doing the following standing exercises, remember to keep an upright posture and tuck in your pelvis and buttocks.

Exercise # 7

Standing with support, keep your back and leg straight, move your _____ leg out to the side, then back to mid-line. Repeat _____

Exercise # 8

Standing with support, keep your back and leg straight, extend your _____ leg behind you. Do not lean forward. Repeat _____

Exercise # 9

Standing with support, lift your _____ knee in front of you. Repeat _____

Exercise # 10

Standing with support, bend your _____ knee, lifting your heel toward your buttocks. Hold 5 seconds. Repeat _____

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Going Home

You should be able to go directly home with an exercise program. However, your surgeon or health care team may decide you need further rehabilitation. If so, you will be referred to one of the following, depending on your needs:

- An out-patient physical therapy clinic or rehabilitation program at your local or rural hospital
- Home care
- An exercise program in your community
- Admission to a sub-acute care or rehabilitation facility

Transportation will be arranged by the hospital if you are being transferred as an in-patient to another facility. You will need to arrange your own transportation if you are going home from hospital.

No two people will progress at the same rate. The speed and success of rehabilitation following total hip replacement surgery depends heavily on you.

It is normal for your hip to be swollen for several weeks following surgery as the healing process continues. You may use ice packs on your hip to help reduce pain and swelling. Ask your physical therapist for specific instructions. It is also normal to feel some numbness in the skin around the incision.

Avoid any sudden jarring, twisting or uncontrolled bending of the hip. Sleep with a pillow between your legs and lie on your good side.

Continue your home exercise program. This will help your leg muscles become strong and supportive and will help you resume your normal activities.

Most importantly, walk as much as you can tolerate every day. Begin with short, frequent walks and slowly increase the distance.

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Managing at Home

The following instructions will help you manage daily activities while recovering. Gradually add activities to your daily routine, remembering to avoid bending your new hip excessively, twisting the hip, and bringing your legs together.

Sitting in a Chair

Choose a chair with a firm seat and armrests. The chair seat should be no more than 1 inch to 2 inches above your knee when standing. The seat height may be raised by adding a firm cushion. Avoid low or soft chairs and couches and do not use chairs that have wheels, rockers or swivel.

To Sit:

1. **Back up** until you can feel the chair at the back of your legs.
2. **Slide** your operated leg slightly forward.
3. **Bend** both knees and lower yourself gently onto the chair.
4. **Reverse** the procedure to stand up.

Using the Toilet

A raised toilet seat and toilet armrests may be recommended to assist you in using the toilet. Make sure the toilet paper is within easy reach.

To Sit:

1. **Back up** until you feel the toilet seat against the back of your legs.
2. **Slide** your operated leg slightly forward.
3. **Bend** both knees and lower yourself slowly onto the toilet seat, using toilet armrests, the countertop or sink for support.
4. **Reverse** the procedure to get up from the toilet.

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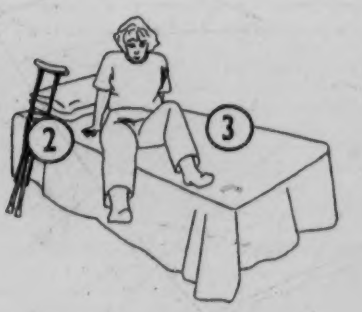
Getting in and out of Bed

Avoid low beds and soft mattresses and waterbeds. Your bed should be 1 inch to 2 inches above your knee when standing. Do not reach forward to pull up the covers from the foot of the bed. Instead, use a reacher. You may lie on your back or on your non-operated side when in bed. Support your operated leg with pillows when lying on the non-operated side.

To Get into Bed:

1. **Sit down** on the bed in the same manner as you would sit on a chair.



2. **Slide** your buttocks back until your knees are on the bed.
3. **Pivot** on your buttocks as you lift your legs onto the bed. Remember to keep your legs apart.

4. **You may use** a pillow to keep your legs apart when lying in bed.
5. **Reverse** the procedure to get out of bed.

NOTE: If your leg is swollen, elevate your **entire leg** on pillows so that your foot is above the level of your heart while lying in bed. You should rest in this position for 45 minutes, 2 to 3 times a day.

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Dressing

Special adaptive equipment should be used to help you dress yourself (e.g. reacher, long-handled shoehorn, dressing sticks, elastic shoelaces, sock aid).

- Choose loose-fitting clothing, including socks.
- Wear low-heeled shoes with elastic laces.
- Be sure to dress the operated leg first and to undress it last.

Bathing

You must bathe from a sitting position at the sink or seated in a chair placed in the tub or walk-in shower. You will not be able to sit on the bottom of the tub to bathe for approximately 3 months. Have someone help you with tub transfers and showering until you can do them on your own. **Do not reach forward for the faucet.** Instead, have someone turn the faucet on and off.

Transfer Techniques: To Get into the Tub

1. **Back up** until you can feel the tub against the back of your legs, hold onto the tub grab bar for support and, with your other hand, reach back for the bath seat and lower your buttocks onto it.
2. **Pivot** on your buttocks and lift your legs one at a time, up and over the side of the tub.
3. **Use** a hand-held showerhead, long-handled sponge and soap-on-a-rope to avoid leaning forward and bending excessively.
4. **Reverse** the procedure to get out of the tub.

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Getting in and out of a Vehicle

Avoid small cars with low seats. Sit in the front seat of the vehicle. A firm foam cushion may be used to raise the height of the seat so that it is above your knee level. The front passenger seatback should be reclined slightly and the seat should be positioned as far back as possible. The driver should park the vehicle several feet from the curb. You may find that a large plastic bag on the seat makes sliding into and out of the vehicle much easier.

To Sit in the Vehicle:

1. **Back up** with your walking aid until you can feel the edge of the vehicle against the back of your legs.

2. **Hold** onto the back of the seat and the vehicle frame for support, slide your operated leg forward slightly, bend both your knees and sit. Be careful to avoid hitting your head.

3. **Slide** your buttocks back towards the middle of the vehicle, and then pivot on your buttocks as you lift your legs one at a time into the vehicle.

4. **Reverse** the procedure to get out of the vehicle.

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Sexual Activity

Most people are able to return to sexual activity when it is comfortable to do so. This activity is safe for your operated leg as long as all the precautions for your hip are followed. Remember:

- Do not bring the knee of your operated leg to your chest.
- Do not turn the knee of your operated leg inward.
- Avoid positions that cause pain.
- Keep the operated leg on a pillow and straight or slightly bent if lying on your side.

Home Management

You will benefit from being organized before surgery. For example, you can purchase food and prepare meals ahead of time, rearrange cupboards to minimize bending, and move everyday items to ground level to avoid climbing stairs.

If additional assistance is needed when you return home, community services such as Meals-on-Wheels, Home Care, and homemaking services, will be arranged by your Case Manager. You may have to pay for some of these services.

Meals

- Carry hot liquids in containers with lids (Thermos or thermal mug with lid) to avoid burns.
- Use the oven only if you can do so without bending your hip beyond 90 degrees or twisting. A microwave or stovetop is preferred.
- Use prepared meals, frozen meals, Meals-on-Wheels or order in food.

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Kitchen

- Keep frequently used items within easy reach and use a long-handled reacher if items are out of reach. Avoid storing food in lower fridge compartments and on low shelves.
- Slide objects along the countertops – don't lift them.
- Use a wheeled trolley or cart to transport items when your hands are occupied with a walking aid.
- Wear an apron with large pockets or a fanny pack or attach a bag to your walker to carry things.
- Sit on a high stool when doing countertop tasks.
- Do not load the lower dishwasher rack, unless you can do so without bending your hip beyond 90 degrees or twisting.

Shopping

- Shop at stores that are easy to get to and have good parking facilities and elevators.
- Bring your walking aid with you.
- Bring your reacher to pick up items off the lower shelves.
- Use a backpack to carry purchases.
- If possible, get help from family or friends.
- Your local grocery store may deliver for a small fee.
- Dairy companies will deliver milk and other dairy products to your door.
- Use canned or frozen goods to decrease the frequency of shopping trips.

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Laundry

- Have someone do laundry for you. If this is not possible, reduce the laundry loads to a few items at a time, carrying them in a plastic bag, backpack or wheeled cart.
- A reacher may make it easier to get laundry in and out of front-loading washers and dryers.
- Sit on a high stool to iron clothes.

Housework and Yard Work

- You should be able to do light housekeeping, such as dusting and washing dishes.
- Arrange to have help with heavy work, such as vacuuming, washing floors, changing bed sheets, cutting the grass and shoveling snow.
- Take out small amounts of garbage at a time if there is no one to do this task.
- Hire assistance if possible.

Driving

- **Discuss this with your surgeon.** He or she will tell you when it is safe to resume driving. This generally depends on which leg had surgery and whether you drive a car with a standard or an automatic transmission.
- Information regarding alternative transportation in your community is available at the Hip and Knee Clinic.

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Activities and Sports

You may feel some stiffness in your new hip, especially during activities that require the hip to be bent to an extreme range. One of the aims of surgery is to improve your hip's range of motion to regain function. How much movement you obtain is often related to how much stiffness you had before surgery.

Your new hip joint may activate metal detectors at airports. Tell the security guard about your surgery if the alarm is activated. Your surgeon can give you a letter or prosthesis card, which you can carry when you travel to confirm you have a prosthesis.

Take special precautions to avoid falling and injuring your hip. You may require complicated surgery if you sustain a fracture around the prosthesis.

Tell your dentist or other doctors involved in your care that you have had hip replacement surgery. You may need antibiotics before having other procedures as there is a risk of infection spreading to your new hip.

It is important to keep the muscles surrounding your new hip strong. Participating in regular, light exercise programs will maintain strength and mobility in your new hip joint.

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Activity Guidelines

Ask your orthopaedic surgeon about any sports or activities you wish to do. The following are guidelines only.

Suitable during First 6 Weeks after Surgery

- Walking

Suitable beginning 3 Months after Surgery

- Swimming (avoiding twisting motions such as whip kick)
- Other aquatic exercises and low-impact aerobics
- Treadmill
- Golf
- Recumbent exercise bike
- Cycling with the seat and handle bars positioned high enough to avoid bending the hip excessively
- Slow gentle dancing
- Light hiking
- Gardening with raised beds or long-handled tools or devices

Activities Not Recommended

- Lifting and pushing heavy objects (more than 11 kg or 25 lbs.)
- Excessive hip bending when squatting or kneeling
- Modern dance (disco, tango, twist), running, tennis, badminton, squash, downhill skiing, contact sports
- Some gym activities such as:
  - High-impact aerobics
  - Heavy weight-lifting

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When to Contact Your Doctor

Go to the nearest emergency department if either of the following occurs:

- Pain in your chest
- Difficulty breathing, shortness of breath

Contact the Hip and Knee Clinic if:

- You have a marked increase in pain, swelling and tenderness in your leg that is not relieved by rest and elevation
- Your incision becomes red, hard, hot and swollen or begins to drain
- You have redness or pain in your lower legs, even when resting
- You have chills and a fever (above 38.5°c)
- You notice blood in your stool, urine or sputum, and have excessive or persistent bruising
- **After Clinic hours, contact your family doctor or go to the nearest emergency department**

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TOTAL HIP REPLACEMENT PATIENT CARE PLAN		
	Day of Surgery	**Day 1 Post-Op**
Nutrition and Elimination	Intravenous (IV) started for fluids and medications Catheter inserted in bladder and urine output monitored for 24 hours Diet, as tolerated	Fluids taken, as tolerated Sit up for meals, as able IV, as needed Catheter removed Start bowel routine Go to bathroom by commode chair/walker with assistance
Hygiene	Assisted mouth and skin care, as required	Wash at sink or basin
Wound Care	Dressing checked and reinforced, as required Hip drained by hemovac, as required	Dressing reinforced, as needed Hemovac removed at 24 hours Wound monitored daily
Pain Control/ Medications	IV or oral medications for pain control once spinal wears off May have epidural	Continue IV or oral pain medications Patient to ask for pain medications when needed
Activity/ Rehabilitation	Patient does the following post-operative exercises every hour when awake: -Deep breathing and coughing -Foot and ankle exercises Position hip in abduction using pillows Sitting up on side of bed and standing with assistance Walking, if able	Deep breathing and coughing Transfer to and from bed and chair with assistance Sit up in chair for short periods Apply ice and elevate leg Ambulate using walker/crutches with assistance (not exceeding doctor-ordered weight limit on operated leg) Begin daily rehabilitation program to increase range of motion and exercises to strengthen operated leg
Discharge Planning	Expected length of stay is 3-4 days Planned day of discharge is written on bedside communication board	Discharge needs discussed with patient's care providers (equipment, services)

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TOTAL HIP REPLACEMENT PATIENT CARE PLAN		
	Day 2 Post-Op	**Day 3-4 Post-Op**
Nutrition and Elimination	Diet, as tolerated Sit up in chair for all meals Discontinue IV, as able	Sit up in chair for all meals Enema or suppository given if no bowel movement
Hygiene		Shower if able and if hemovac drain removed
Wound Care	Remove dressing and redress if draining	Expose incision when wound is dry
Pain Control/ Medications	Pain medication as required, and coordinated with activity or rehabilitation schedule	Pain control medication prior to exercise Review home instructions for self-administering Fragmin to help prevent blood clotting
Activity/ Rehabilitation	Deep breathing and coughing Increase frequency of transfers to and from bed and chair, and increase independence of transfers Apply ice and elevate leg Increase distance and frequency of ambulation. Progress to crutches, as able Continue exercises (with therapist and independently) Occupational therapy initiated, as needed	Deep breathing and coughing Progress to crutches, as appropriate Review procedure for climbing/ descending stairs Review home exercises Apply ice and elevate leg Continue to increase independent transfers to and from bed and chair, and ambulation to bathroom and hallway, as able Attend occupational therapy session to review tub transfers and dressing, if required
Discharge Planning	Confirm discharge plan and equipment are in place Resources contacted, as required (i.e. sub-acute facility, Home Care, mobile lab)	Arrange out-patient physiotherapy if requested by surgeon (when new hip has less than 45° of flexion and/or thigh muscles significantly weak)

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	Discharge Goals
Nutrition and Elimination	Eating and bowel movements returning to normal
Hygiene	Patient manages independently
Wound Care	Surgical wound is clean and dry, or wound care management arranged for home Staple/suture removal arranged
Pain Control/ Medications	Pain management discussed with and understood by patient Required prescriptions provided to patient
Activity/ Rehabilitation	Patient is able to: -Achieve minimum 45° flexion in operated leg -Transfer to and from bed and chair, and stand independently and safely -Walk 30 metres using walking aid without exceeding doctor-ordered weight limit on operated leg -Climb and descend stairs safely -Perform home exercises and daily living activities safely (or has support in place at home for required activities) Patients requiring more rehabilitation will be transferred to a sub-acute facility
Discharge Planning	Patient is given and understands: -Discharge instructions -Required exercise routine -Follow-up appointment dates

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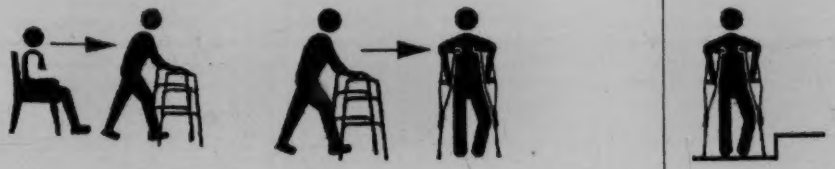
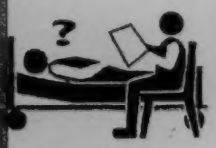
Patient Pathway for Total Hip Replacement

	Day of Surgery	Day 1 (Post-Op)	Day 2 (Post-Op)	Day 3 (Post-Op)	Day of Discharge
Diet	Clear fluids only		Begin food and drink	Food and drink	
Activity					
Medications	IV or Pills for Pain	IV or Pills	Pills		
Discharge Planning			 Discharge Plan Discussed		

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Ask your Surgeon

1. When can I take my full weight on my operated leg?_____
2. How soon can I drive?_____
3. When can I do the activities and sports I enjoy?_____
4. When can I travel? _____
5. Are there any activities I should continue to avoid?
   _____
6. When can I return to work?_____
7. Other questions _____

Ask your Family Doctor

1. What medications should I start or continue to take after my surgery?
   _____
2. When should I make an appointment to see my family doctor after surgery? _____

Notes/Special Instructions:_____

_____

_____

Resources

Surgeon:_____ **Phone:** _____

Hip and Knee Clinic:_____ **Phone:** _____

(Case Manager)

Patient Care Unit:_____ **Phone:**_____

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ALBERTA BONE & JOINT INSTITUTE HEALTH

High Iron Diet

February 2006

CHOOSING A HIGH IRON DIET

- Iron is a mineral that is essential to life. The most important role that iron plays is to carry the oxygen in the blood to every cell in the body. If your blood does not have enough iron, you may feel tired, and drained of energy.
- Iron is present in several forms within food. Iron in meat is absorbed better than iron from plant foods. You can increase the adsorption of plant iron by including food high in Vitamin C (oranges, tomatoes, potatoes, and green peppers).
- The best sources of meat iron are organ meats and red meats. Fish, poultry and eggs also contain iron but in smaller quantities.
- The highest levels of plant iron are found in green leafy vegetables and in legumes. Other good sources are whole grain and enriched grain products.

Helpful Hints:

- Try to combine the excellent, good and fair sources to achieve a more complete diet.
- Avoid drinking coffee and tea with your meals as they decrease the amount of iron adsorbed.
- To increase the iron content of food, try adding sources of iron to your baking (wheat germ, bran, molasses, dried fruit, or nuts). Wheat germ and bran can be sprinkled on top of cereals, vegetables, casseroles or desserts. Cooking with cast iron pots can increase the iron in your food.
- If you are unable to eat a variety of foods mentioned above, or if your doctor advises you that you are low in iron, then iron pills can be taken with your meals. The best adsorbed are Ferrous Sulphate or Ferrous Gulconate. Your doctor can advise you on amounts to consume.

Excellent Sources (> 2 mg/serving)
➢ Organ meats (beef, chicken or pork) – 100 g or 3 oz
➢ Lean beef --- 100 g or 3 oz
➢ Enriched breakfast cereals – 30 mg or 1 oz
➢ Kidney beans – 250 ml or 1 cup
➢ Baked potato – 1 large
➢ Asparagus, canned – 125 ml or ½ cup
➢ Blackstrap molasses – 15 ml or 1 tbsp
➢ Oysters, clams and scallops – 5 small

Good Sources – (1-2 mg/serving)	Fair Sources (< mg/serving)
➢ Egg – 1 large ➢ Broccoli – 125 ml or ½ cup ➢ Poultry – 100 g or 3 oz ➢ Dried apricots – 50 ml or ¼ cup ➢ Brand muffin – 1 medium muffin ➢ Enriched macaroni – 250 ml or 1 cup ➢ Rolled oats (dry) 125 ml or ½ cup	➢ Enriched pasta – 250 ml or 1 cup ➢ Whole grain (enriched) bread – 1 slice ➢ Fig bars – 2 cookies ➢ Wheat germ – 15 ml or 1 tbsp ➢ Table molasses – 15 ml or 1 tbsp ➢ Raisins – 50 ml or ¼ cup ➢ Dates – 50 ml or ¼ cup

Absorption is the Key

Only a portion of the iron contained in a food is absorbed by the body. Heme iron is much better absorbed than non-heme iron. For example, while a serving of bran flakes contains more iron than a serving of sirloin steak, your body absorbs almost twice as much iron from the steak. Base your recommended level of iron intake on the iron content of food as shown below, but remember that some sources are absorbed better than others.

HEME IRON		
Sources	Iron Content mg	Iron Absorbed mg
Beef liver, pan fried (90 g)	5.7	0.64
Sirloin steak, broiled (90 g)	2.8	0.42
Lamb chop, broiled (90 g)	1.8	0.27
Pork tenderloin roasted (90 g)	1.4	0.16
Veal loin, roasted (90 g)	0.8	0.11
Chicken breast, roasted (90 g)	0.9	0.13
Sole, baked (90 g)	0.4	0.04
NON-HEME IRON		
Sources	Iron Content mg	Iron Absorbed mg
Bran flakes (175 ml)	4.7	0.23
Kidney beans, canned (125 ml)	2.3	0.12
Tofu (90 g)	1.7	0.09
Enriched pasta (125 ml)	1.1	0.06
Spinach, raw (125 ml)	0.8	0.04
Whole wheat bread (1 slice)	0.8	0.04
Raisins (30 ml)	0.4	0.02

How to Maximize Your Iron Absorption

In addition to including foods that contain heme iron in your diet, here are some other important factors to consider.

1. Choose Food with High Iron Content From Each Food Group: Iron is usually found in more colorful foods, such as red meats, dark green vegetables and the browns of whole grains. For example, choose spinach salad instead of lettuce salad or lean beef instead of chicken breast. Use the charts in this booklet as a guide, Keep in mind that nutrition labels may state the iron content of a food, but not the amount of iron actually absorbed by your body.

2. Include Iron Enhances: Certain factors, known as iron enhancers, help the body absorb more non-heme iron. Iron enhancers include meat, poultry, fish and foods rich in Vitamin C, such as oranges, grapefruit, strawberries and cantaloupe. These foods will help you absorb more iron from vegetables, fruits and grains. For example, if you drink a glass of orange juice with a bowl of oatmeal cereal, you will absorb more iron from the oatmeal than if you eat it alone.

3. Be Aware of Iron Inhibitors: Some foods contain iron inhibitors, which decrease iron absorption. Oxalates in spinach and phytates in whole grains inhibit the absorption of iron from these foods. Other examples of common foods that contain inhibitors are: tea, coffee, bran and legumes (soy beans, split peas, dried beans and lentils). A high fibre intake in general may act as an iron inhibitor. To help your body absorb more iron, eat foods that contain heme iron and/or Vitamin C when you eat foods that act as iron inhibitors.

EASY WAYS TO INCREASE YOUR IRON INTAKE	
Choose	With
Grapefruit	+ Whole wheat toast
Chicken	+ Brown rice
Orange juice	+ Oatmeal
Beef sirloin strips	+ Spinach salad
Kiwi	+ Egg sandwich

EASY WAYS TO INCREASE YOUR IRON INTAKE	
Choose More Often	Choose Less Often
90 g lean beef	90 g roast chicken
125 ml spinach (raw)	125 ml lettuce
90 g ground beef	90 g cod
1 bran muffin	1 blueberry muffin
125 ml cooked pasta	125 ml cooked rice
125 ml green peas	125 ml carrots
4 dried apricots	1 apple
175 ml bran flakes	175 ml corn flakes
250 ml split pea soup	250 ml tomato soup
90 g liver	90 g roast turkey
250 ml chili	250 ml macaroni and cheese

If you would like more information regarding this subject please feel free to contact the Beef Information Centre in Alberta at 215, 6715 8 Street NE, Calgary, Alberta T2E 7K7

ALBERTA BONE & JOINT INSTITUTE HEALTH

PRE-SURGERY EXERCISE PROGRAM

March, 2005

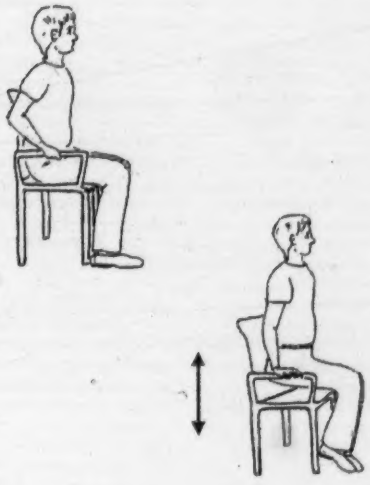
PRE-SURGERY EXERCISE PROGRAM

- **Complete the following exercise program 4-5 times per week**
- **Record your repetitions (# Reps) for each exercise in your log book daily**
- **The goal of the program is to improve function and strength, not flare sore joints. Modify the exercises and break up the program into shorter sessions if needed**
- **Discontinue any exercise you feel is making you worse**
- **If you have questions or concerns please phone _____**

Sitting

EXERCISE #1 Lift Ups

With your hands on the armrests of the chair, push through your arms and lift your buttocks up off the chair seat. Lower back down into the chair. Repeat several times.
Modifications: Change wrist position if needed, pad armrest to decrease pressure on your hands, decrease how high you lift off the chair by sitting on a pillow, push through the seat of chair rather than armrest if your shoulders or elbows can't tolerate the height of the armrest, sit forward in the chair and use your legs to assist lifting.
Progression: Lift higher off the chair or increase the number of repetitions



EXERCISE # 2 Knee Extension (straighten)

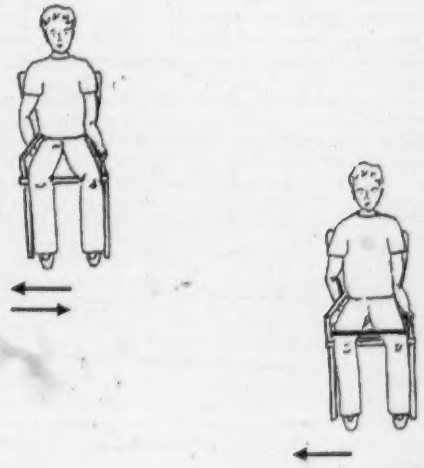
Sitting back in the chair, straighten your knee lifting your heel off the floor. Hold for 5 seconds then lower the foot to the floor again. Repeat several times.
Modifications: Do the above exercise on a taller chair or the edge of the bed; use your stronger leg to assist lifting if you cannot lift your weak one against gravity.
Progression: Place the elastic loop around your ankles and resist straightening your weaker knee by holding the other leg flexed. Repeat several times, Repeat with stronger leg.

EXERCISE # 3 Knee Flexion (bend)

Bend your weak leg, sliding your foot back toward the chair. Repeat several times.
Modification: Do the above exercise on a taller chair.
Progression: Place the elastic loop around your ankles and resist bending the weaker knee by keeping the stronger knee straight.
Repeat several times. Repeat with the strong leg.

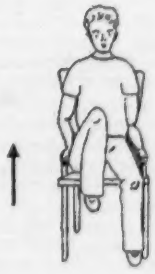
EXERCISE # 4 Hip Abduction (push apart)

Keeping your feet on the floor and pointed straight ahead, slide your weaker leg out to the side of the chair and back in. Repeat several times.
Modification: Sit on a wooden chair or place a plastic garbage bag under you while you do the exercise to decrease friction.
Progression: Place the elastic loop around your thighs and push your legs apart, keeping your feet on the floor and pointed straight ahead or hold position for 5 seconds each repetition.



EXERCISE # 5 Hip Flexion (lift knee)

Lift your foot up off the floor, raising your weak knee toward your chest. Lower back down. Repeat several times.
Modification: Barely lift your foot off the floor to begin with and gradually increase height.
Progression: Place the elastic loop around your thighs and lift the weak leg against the resistance. Repeat several times. Repeat with the other leg.



EXERCISE # 6 Hip Adduction (squeeze)

Place a firm roll or pillow between your thighs (close to the knees). Squeeze your legs together and tighten your buttock. Hold for 5 seconds then relax. Repeat several times.

EXERCISE # 7 Arm Elevation (reach up)

Maintaining a good posture and your shoulder blades together, reach up and across your face towards the ceiling and back down. Repeat as many times as you can in 1 minute. Be sure to straighten arms and stretch as high as possible each repetition.
Modifications: Assist the weaker arm with the stronger one by holding hands; don't stretch fully at first if uncomfortable.
Progression: Hold an elastic band in hands and resist one arm reaching up and across while pulling down with the other. Repeat several times then reverse arm that lifts.

EXERCISE # 8 Stand – Sit

Sitting on the edge or front of a chair, stand up and sit down as many times as you can in 1 minute.
Modifications: Use a taller chair or use a chair with armrests.
Progression: Stand up using your strong leg only, Use a lower chair, rest after 1 minute then repeat again.

Lying Down

EXERCISE # 9 Hip and Knee Flexion (bend)

Lying on your back, bend your knee sliding your heel toward your buttock. Repeat several times. Repeat with the other leg.
Modification: Place a wide belt or towel under your thigh and help bend the knee by lifting the sling with your arms.

EXERCISE #10 Hip Abduction (out)

Lying on your back with toes and knees pointing toward the ceiling, push your leg straight out to the side then back in. Repeat several times. Do not twist the leg to move, just push straight out.
Modification: Place a plastic garbage bag under your leg so the leg will slide more easily.
Progression: Lying on your stronger side with a pillow between your knees, lift your weaker leg straight up off the pillow. Start with the knee bent and work towards lifting a straight leg. Progress to holding the leg up for 5 seconds and repeat several times.

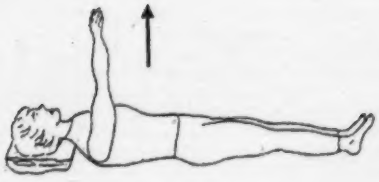
EXERCISE # 11 Bridging

Lying on your back with knees bent, tighten your stomach and buttock and lift your pelvis straight up off the bed. Repeat several times.
Modifications: Start by barely lifting your pelvis off the bed and progress height lifted gradually; only use the stronger leg if other leg does not tolerate the activity.
Progression: Hold pelvis off bed for 5 seconds each repetition, Lift higher off the bed, lift with one leg only at a time, place elastic loop around thighs and push out against it as you lift off the bed.

EXERCISE # 12 Knee Extension

Place a firm roll (rolled up towel) under your weak knee. Straighten the knee, lifting the foot off the bed. Hold 5 seconds. Repeat several times.
Modification: Use a bigger or smaller roll, whichever is more comfortable or do the exercise in sitting (see exercise # 10).
Progression: Place the elastic loop around your ankles and resist straightening the weak knee by keeping the other knee straight. Repeat.

EXERCISE # 13 Arm Elevation



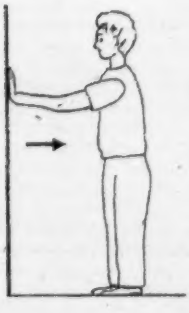
Lift arms, reaching toward the ceiling.
Modification: Lift one arm at a time or modify how far you reach.
Progression: Hold weights in your hands as you reach (soup cans, cuff weights), reach for the head of the bed.

EXERCISE # 14 Shoulder Extension and Retraction

With arms held towards ceilings and elastic held with both hands, pull one hand down towards your chest stretching the elastic. Repeat several times. Rest, and then repeat with other arm.
Modification: Do in sitting position with arms in front of you and hands resting on your lap.

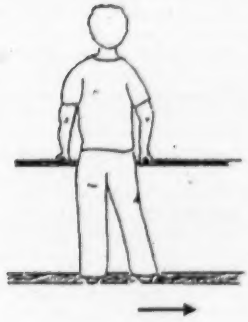
Standing

EXERCISE # 15 Modified Push Ups



Standing slightly away from a wall, reach out and place hands on the wall at shoulder height. Keeping your back straight, bend elbows and do a push up against the wall. Remember to bend and straighten elbows fully with each repetition. Repeat several times.
Modifications: Change wrist position if needed, lower hand position on wall or do against kitchen counter or stable chair instead, pad hands with face towel.
Progression: Move away from wall further, do against lower surface (kitchen counter or stable chair), increase number of repetitions, do push ups slower.

EXERCISE #16 Hip Abduction (push sideways)



Standing upright and holding onto a counter for balance, push your weak leg out to the side and back in. Repeat several times. Repeat with stronger leg if you can tolerate standing on your weaker leg.
Modification: Do in a sitting position if you can't tolerate standing (see exercise # 11).
Progression: Place the elastic around your thighs and push out against the resistance with your weak leg. **Be very careful not to fall with elastic around your legs** (or do in sitting).

EXERCISE #17 Hip Extension (back)

Standing upright and holding onto a counter for balance, push your weak leg behind you keeping the knee straight. Do not let your upper body tip forward as you move the leg back. Repeat several times. Repeat with other leg if able.
Progression: Rest your upper body forward on a counter and lift the weak leg into the air behind you, keeping the knee straight. Repeat several times.

EXERCISE # 18 Hip Flexion (bend up)

Standing upright and holding onto counter with outreached arms, bend your weak leg up in front of you. Repeat several times.

EXERCISE # 19 Knee Flexion (bend)

Standing upright and holding onto a counter, keep your hip straight and bend your weak knee lifting your heel behind you toward your buttock. Keep the knee pointing toward the floor. Repeat several times.
Modification: Barely lift the heel off the floor to start with.
Progression: Place the loop around the weak ankle and foot and step on the elastic with the other foot. Bend the weaker knee, lifting the heel towards the buttock, working against the elastic resistance.

EXERCISE # 20 Knee Dip

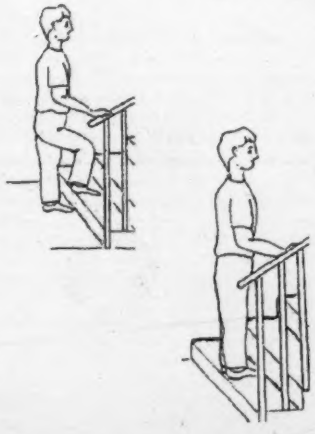
Holding onto a counter and maintaining an upright posture, bend knees slightly sinking or dipping towards the floor. Stand up again and repeat several times.
Progression: Dip with your weight on your strong leg only, and then dip with your weight **mainly** on your weaker leg if able.

EXERCISE #21 Walking

Walk laps inside your house, outside if safe or at a mall. Use walker, crutches or cane if they increase your ability to tolerate the activity and decrease your limp. Record the distance or length of time you walk.

EXERCISE # 22 Stairs – only if a railing is present

Do step-ups on a single step, going up with your strong leg first and down with your weak first. Hold onto the railing for balance and weight bearing through it if needed. Use a cane or crutch in the other hand if they increase your ability to tolerate the activity. Repeat several times.
Progression: Climb up or down the flight of steps. Record the number of steps you can complete in a session. Do modified step-ups on a telephone book with your weak leg if it will tolerate the activity.



ALBERTA BONE & JOINT INSTITUTE HEALTH

PATIENT EXERCISE LOG-BOOK

Preparation for Total Joint Surgery

March, 2005

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